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Responsibility of American Society of Oral Surgeons to its members

■ *Lyall O. Bishop, D.D.S., Walnut Creek, Calif.*

The specialty of oral surgery currently is going through a transitional stage. Educational requirements for graduate and postgraduate study, for admission to hospital training programs and for board qualification are increasing constantly. This constant improvement in educational requirements is necessary to keep the practice of oral surgery abreast of the rapidly rising plane of health science and thereby to occupy an adequate position in the hospital care of patients.

The American Society of Oral Surgeons is also changing rapidly and must continue to do so to maintain adequate working relationships with the American Dental Association, the American Medical Association, the American Hospital Association and other health agencies. To do this requires an effective central organization working in close cooperation with the other health organizations to promote more effective patient care.

Before discussing the responsibility of the American Society of Oral Surgeons to its members, some general observations should be made regarding the responsibilities of members of the society, and also the changed role of the professional man in these times.

It no longer is possible for an individual to be merely a dentist of a given community as was true in years past. As a professional man, and in this particular instance, as an oral surgeon, he has several definite working responsibilities. He has a responsibility as a citizen both to his community and to the nation. He should take an interest in civic and public affairs. In the 1948 presidential election, nearly one half of all qualified voters failed to go to the polls and 40 per cent of all professional men did not vote in that election. This does not mean that they must be office seekers or political pushers, but they should have an awareness of those things which affect everyday existence.

In a recent address, Harry Lyons, immediate past president of the American Dental Association, said:

> This is an age that calls for many things: study, foresight, courage and active participation in communal affairs. We dentists must break the shackles of our office isolation and lend the weight of our intellect and courage

Presented before the American Society of Oral Surgeons, October 30, 1957, Miami Beach, Fla.

toward the solution of prevailing social, political and economic problems in which our profession has important stakes. We should do this not only for ourselves, but more importantly, for the society of which we are but a part.

As professional men, how do we regard ourselves individually? In a sense we are persons set aside, we have been screened, selected and certified to perform an important specialized service. We have reached this pinnacle by gaining a background of academic and scientific knowledge through our universities, our professional colleagues and organized dental associations and societies. To each of these, then, we have not only a specific responsibility of loyalty and support, but also an obligation to understand the methods and problems of education at all levels in order that we may assist in the training of other generations of young practitioners.

Finally, each individual has a responsibility to himself as a professional man to raise the standards and increase the achievement of society as a whole. In this pursuit each individual must have high goals, but he must, at the same time, permit the "risk of error." Demanding perfection in others is one of the problems in professional life. Too many men have come to expect infallibility in administrative judgment in those who occupy high positions in professional associations. On the other hand, the administrative section of any organization must realize its obligation to the membership is to carry on the most efficient work for the benefit of the majority of the members.

Now as to the responsibility of the society to the members. Recently I interviewed a young man who was painstakingly trying to prepare himself for a life's work in oral surgery. In his attempt to secure the best preparation possible he had completed one university graduate course of three years, had taken another postgraduate course and was about to take another postgraduate course on the assumption that too much preparation was impossible. This young man in the state of educational preparation had never been able to follow a case to its conclusion, on his own, and after listening to many contradictions in his various courses, needless to say, had a mental attitude toward private practice that was one of wide-eyed bewilderment. To me, this suggests that something is wrong, and that is "the loss of a common purpose."

There is nothing like a common purpose to inspire a feeling of comradeship among people. Neighbors who grow flowers for a hobby, men who delight in a regular game of golf or those who drive sports cars, each become friendlier and know each other better since they have a mutual interest. They are trying to exchange ideas and information which ultimately will lead to a common purpose. Mutual interest in oral surgery attracted men and cemented friendships to a most unusual degree when this specialty was in its infancy and led to the formation of this society almost 40 years ago. The common desire to advance the specialty of oral surgery has led many persons to sacrifice endless time and money in their enthusiasm. Such efforts have resulted in oral surgery becoming a recognized and important health service in the over-all health picture of this nation.

Certainly, the specialty of oral surgery is undergoing a transition. Educational standards for postgraduate and

graduate training are constantly changing. Requirements for admission to individual oral surgery societies and to qualify for board examinations are being elevated constantly. Many individual practitioners of oral surgery are struggling to keep oral surgery before the public and professions as a specialty of dentistry. However, there are groups within the specialty of oral surgery who believe that the ideas of many members are hopelessly amateurish. Those who hold such ideas are willing to allow outside opinions to influence their thinking as to the scope of oral surgery. Such influence, of course, is reflected not only in office practice but more important to the specialty today, in hospital relationships with the medical profession.

The specialty of oral surgery, with this society as its representative, is one of several such specialties within the framework of dentistry. Of the almost 90 thousand dentists represented by the American Dental Association, the oral surgeons are a very minority group. Could not their position, then, from the standpoint of education, research, hospital standards, as well as policy, be strengthened by a closer liaison between the administrative structure of this society and that of like specialty groups as well as those so important to us basically; namely, the American Dental Association, the American Medical Association and the American Hospital Association.

It is not inconceivable that the American Society of Oral Surgeons might expand its organization to include the many regional oral surgical groups operating throughout the country as individual societies. Naturally, the incorporation of these groups into the society would require considerable study to effect the mechanics of such a move, but are we not all striving for a "common purpose"?

The newsletters received recently by the members of the American Society of Oral Surgeons have been an innovation. Any organization which reaches the size of this society, particularly in view of its widespread membership, has an obligation to keep that membership well informed on all pertinent questions and changes which may affect the individual or the society. It must be remembered that many members of the society do not attend the annual sessions of the society regularly, and yet if they are to be retained in an active status they must be kept aware, periodically, of the workings of the society so that their membership certificate will not become just one among many. This newsletter could be a direct stimulus to the novitiates who many times find it impossible to attend the first two or three meetings after their introduction as members but who may, through such a contact, be aware of and develop a keen interest in society affairs.

Since the key to continued life and success of any organization depends primarily on its efficient administrative structure, it is reasonable to assume that the American Society of Oral Surgeons, having made a few changes in this area since its inception, would require a complete re-evaluation with a view to reorganization if it is to maintain a high position among scientific societies.

Some may say that time alone will solve many of these problems, but while time is elapsing, more and more young men are looking forward to becoming specialists in oral surgery. This society, then,

must be ever mindful of that fact and should endeavor to encourage its members to maintain the highest standards in their respective communities. These standards should encompass surgical ability, professional integrity, hospital relationships and public relations, the last certainly not being the least.

With good central administration working in close cooperation with our parent organization, the American Dental Association, and other allied health groups, we may approach these problems with a solid front. This society cannot emulate an ostrich with his head in the sand if we are to expect our members to participate in the affairs of dentistry as a whole, or to make the society increasingly effective in the progress and position of oral surgery.—*1261 Broadway South.*

Effective organization of a professional society

■ *Rudolph H. Friedrich, D.D.S., Chicago*

If it is the desire of the members of the American Society of Oral Surgeons to be represented by a more effective and democratic organization to develop policy and to coordinate its efforts with those of the American Dental Association, it should seriously consider its objectives and then develop a program that is adequate to achieve these objectives. To that end it should undertake reorganization with the understanding that effective reorganization and expansion of services usually entail increased costs.

The dentist's basic obligations which determine his professional status are described in Sections 1 through 4 of the *Principles of Ethics* of the American Dental Association under the headings of "Education Beyond the Usual Level," "Service to the Public," "Government of a Profession" and "Leadership." These principles outline the constant obligation in the performance of the profession's contract with the public, but the manner in which the obligations are fulfilled may vary with the changing socioeconomic environment of the society which the profession serves.

There can be little doubt as to the magnitude of the socioeconomic changes that have taken place in the past decade. Nor can there be any question of the increased burden which the dental profession and its organizations must assume in maintaining their high standards of professional performance while meeting the changing needs of the people.

It is to the credit of the American Society of Oral Surgeons that it recognizes its need for an expanded program and for a more effective policy-making and ad-

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Secretary, Council on Dental Health, American Dental Association.

ministrative mechanism if it is to continue to meet its obligations to the public, the dental profession and the other health professions and services.

It is not my purpose to present the blueprint for a program which will solve the problems of this association or an organizational chart guaranteed to establish the necessary administrative pattern for meeting all of the society's needs. I shall attempt to outline the obligations which the society and its members have, some of the problems which require attention, some of the decisions which should be made and some of the administrative factors which will be of assistance.

■ *Responsibilities of Individual*

In the practice of his specialty, the oral surgeon finds himself involved in the basic responsibility of the dental profession; namely, the development, restoration and maintenance of sound, functional, dental occlusion and the health of the oral tissues and associated structures. He is involved in the same problems of increasing the capacity of dental practice to meet the demand for dental care and of improving the methods for meeting the costs of dental care that concern all members of the dental profession.

In short, the oral surgeon is concerned with all of the problems which concern the dental profession as a whole. He has the additional responsibility, however, both individually and through his society, of providing his specialized advice and assistance in the solution of dentistry's problems. The dental profession has a right to expect the oral surgeon and his society to provide freely of their oral surgical skills, knowledge and experience in the solution of problems in which their specialized qualifications entitle them to speak with special competence.

■ *Status of Specialty Society*

The first problem which should be considered is the status of the specialty society in the complex of organized dentistry. Is it a substitute for the American Dental Association through which specialists meet their professional obligations and fulfill their need for organized expression? Is it an extension of the American Dental Association that provides its specialized membership with the opportunity for improving the standards of, in this instance, oral surgery, and developing policy which, if coordinated with the policies of the A.D.A. and of other specialty societies, will improve the health of the public?

The answer is, of course, quite clear. As a prerequisite for membership, this society, through its constitution and bylaws, requires membership in the American Dental Association (Chapter V). Furthermore, its constitution and bylaws commit the members to the *Principles of Ethics* of the American Dental Association (Chapter XI) and extend those principles through the declarative pledge of the society. The society is likewise committed (Chapter IV) to the use of the JOURNAL OF ORAL SURGERY of the American Dental Association for publication of oral surgical literature.

■ *Organization of Specialty Society*

What, then, are the essential features of a society which can establish authorita-

tive and effective policy? First, the society must have a strong, active and enthusiastic membership. The attainment of such membership calls for a program that provides benefits commensurate with the costs of membership in contributions of personal effort and financial aid. Secondly, it requires a mechanism for the development of sound policy representing a compromise of all of the views of the membership. The existence of a spirit that will produce a compromise will also produce a unity within the society that is one of the best instruments for developing an effective organization.

A mechanism for developing sound and acceptable policy should consist of the following elements which, in my opinion, are listed in the order of their importance:

1. THE LEGISLATIVE BODY. The legislative body should provide the broadest possible representation of the membership, depending on the size and resources of the society. It may be organized from the members as a whole or by delegates of component societies if such exist. It should be the supreme authoritative body of the society, possessing the legislative powers to determine the policies which govern the society in all of its activities.

2. THE ADMINISTRATIVE BODY. The administrative body should be composed of representative members of the society who have a demonstrated interest in and an understanding of the problems and management of the society. It should be the managing body of the society with full power to conduct the business of the society.

3. ELECTED OFFICERS: PRESIDENT, PRESIDENT-ELECT, VICE PRESIDENT. The elected officers should provide the parliamentary leadership of the society and perform such other *ex officio* duties as may be assigned to them under the bylaws.

4. THE ADMINISTRATIVE OFFICER. The administrative officer should be an appointive officer immediately responsible to the administrative body. He should be the executive head of the society office and responsible for its operation. He should supervise and coordinate the activities of all committees and systematize the preparation of their reports.

5. COMMITTEES. The committees should be the agencies of the society that compile, develop and disseminate basic information related to problems of the society that come within the scope of their specific assignments. They should also develop the policy recommendations which they consider necessary to the management of those problems.

■ *Committee Structure and Operation*

The committee structure of a society should be limited to the number of specific, essential areas of activity in the society's program that can be delineated without conflict or overlapping of duties. So far as is possible, all of the views on the particular problems which are considered by the committee should be represented in the committee membership.

The committees may be assigned the responsibility for carrying out certain operations and negotiations the administrative officer and body feel they are

particularly qualified to conduct within the established policy of the society. Under no circumstances should committees be empowered to act for the society outside of the established administrative control of the society.

Particular attention should be given to the method of selection of the chairman of a committee. His ability to have all views expressed and considered and his ability to guide the consideration to an acceptable compromise of these views is much more important than his ability to enunciate conclusions and solutions.

■ *Society Administration and Development of Policy*

Problems for the consideration of a committee may originate from within the committee itself, be directed to the committee from other agencies of the society or transmitted from society members through the administrative officer. In any democratic society, provision must be made for the reception and consideration of the views of any member or group of members.

When all of the views relative to a problem requiring policy determination have been given full consideration and an acceptable compromise recommendation has been developed by the committee, the recommendation should be reported through the administrative officer to the administrative body for consideration and for transmission to the legislative body for final action. If the legislative body is small enough to do so without causing confusion, it can act directly on the recommendation of the committee and the administrative body. If the legislative body is too large for such direct consideration, it may refer the report to a reference committee drawn from its members for further consideration and recommendation. The legislative body should then consider the report of its reference committee and, in accordance with accepted parliamentary procedure, establish the ultimate policy. Finally, the policy should be recorded and catalogued.

The effectiveness of policy adopted by the society will be in direct proportion to its clarity and to the extent of its acceptance and support by the membership.

■ *Implementation of Society Policy*

Presupposing that the policies of the specialty society are arrived at by democratic methods and that they are sound policies dealing with the specialized problems of oral surgery and oral surgeons, there still remains the problem of gaining acceptance of the policies in the interest of the health of the public. What mechanisms are available to the society for gaining acceptance of its policies?

As was discussed earlier, the oral surgeon has his basic obligation as a dentist to provide the highest standard of advice and care to his individual patients. Accordingly, he has the continuing opportunity to provide the public with the best of dental health education and advice.

It was noted previously also that the American Society of Oral Surgeons, through its obligation to abide by the *Principles of Ethics* of the American Dental Association, has a duty to advance the basic knowledge and standards of the dental profession. It has the additional right and opportunity of adding the support of the whole of the dental profession to its

policies by seeking their incorporation into the policies of organized dentistry. The society also has the right and the obligation to present its considered policies to other professional agencies when those policies are in the interest of the public and if they enhance the oral surgeons' opportunity to render a more adequate oral health service to the public.

In addition to the basic moral considerations which have been discussed in this paper, there are several very important, practical facets to the problem of gaining acceptance of a society's policies.

The agencies of the federal government, nongovernmental public agencies and national health agencies, traditionally, are responsive to the advice and assistance of the American Dental Association which is the voice of nearly 90,000 members. The Association's record of accomplishment in gaining acceptance of its policies related to the improvement of the health of the public establishes it as the most effective agency in organized dentistry to manage the profession's policy negotiations.

The program of the American Dental Association provides the activities and capacities of 17 Councils and four Bureaus through which a specialty society's policies can be welded into the policy recommendations which are presented to the House of Delegates. Those Councils of the Association that are dealing with the problems of the specialty boards also select consultants and advisers from the specialty to help the Council and its subcommittees in their deliberations. The Association and its Councils have an established competency in implementing the policies so established.

All of the recognized specialty societies of the dental profession have direct official access to the American Dental Association through its secretary. The individual members have the same direct access to the policy-making mechanism: all members of the Association have the opportunity to become members of Councils, the Board of Trustees or the House of Delegates or to be elected officers. They all have the opportunity of presenting their views directly to the reference committees of the House of Delegates which consider the problems that are to be acted upon by the House.

In my view, the questions which should receive primary consideration by the American Society of Oral Surgeons are:

1. How can the society make use of the resources of the American Dental Association for carrying out policies for improving the health of the public?

It should develop within its own program the means and methods for collecting accurate information relative to practice, basic and continuing education and research in oral surgery. Two examples in areas in which I have an immediate interest are methods for meeting the costs of dental care and dental health education.

Two of the methods for meeting the costs of dental care that are receiving the continuing attention of the Council on Dental Health of the Association are Blue Shield and Blue Cross and commercial health insurance programs. The oral surgeon has a very important and proper interest in these programs. This society has an obligation to develop accurate information on the number of its members who

are affected by the regulations under which these programs operate and on the amount of treatment which oral surgeons render involving benefits made available to the subscribers of the plans. It should develop information as to the distribution of oral surgeons in this country in order to demonstrate the access which people have to the services of oral surgeons. From this information, it should be able to develop sound policy relative to the adaptation of payment to the dentist for the treatment of acute medical and surgical problems of the oral tissues that ordinarily are resolved under dental management.

Such policies should be communicated to the American Dental Association for consideration in its policy determination or for inclusion in the information materials which the Association develops for state societies that are negotiating for direct payment to dentists by Blue Cross and Blue Shield. In the case of policy related to commercial health insurance, it should be communicated to the Association and should also be made available directly from the society to state dental societies.

The availability of oral health benefits through Blue Shield and commercial insurance plans is not a matter of concern to oral surgeons alone. It is questionable whether the subscribing public will gain any significant benefit from a program which will pay only for acute medical and surgical procedures involving the oral tissues if they are performed by an oral surgeon in a hospital. I would hazard a guess that, at the present time, the greater part of such treatment is rendered in the dental office by the general practitioner, even though most of the more difficult and complicated oral surgical procedures are referred to the oral surgeon. Therefore, if this society will develop its information and policy with the aim of joining with the American Dental Association or state dental societies in gaining acceptance from state Blue Shield and Blue Cross plans and commercial insurance companies, not only will the interest of the oral surgeons be well served, but the public and the dental profession, as a whole, will benefit. It goes without saying that the intraprofessional relations of the oral surgeons will gain much from such an approach.

I would also call your attention to the availability of the Bureau of Dental Health Education for guidance and development of dental health educational material related to oral surgery or to a specific program for such health education. The improvement in the Association's dental health education program under the direction of a qualified and competent health educator in the past three years is one of the major accomplishments of the Association. Whatever this society decides is necessary in the way of special dental health education material, either for general distribution to the public or for the use of the oral surgeon in his direct relations with patients, may be submitted to the Bureau with the recommendations of the society. The material which the Bureau will prepare will be integrated with the general health education program of the Association. This will assure its acceptance by the general membership which, again, will enhance the oral surgeons' intraprofessional relations.

The society can develop its own policy-making mechanism to the point where it produces sound professional pol-

icy which is clearly in the interests of the public, oral surgery and the dental profession.

It can work toward the integration of its policies with those of the American Dental Association. It can assist the Association in its negotiations with other agencies where such negotiations involve specific oral surgical problems, as well as general dental problems, by presenting accurate information, advice and solutions.

2. Does the use of the American Dental Association as an aid in gaining acceptance of the society's policy preclude direct negotiations with other professional agencies?

Of course not. In those areas where this society can speak with specific competence from the background of sound policy, it has the right and the duty to do so. In such enunciations by the society, it is important to distinguish between individual opinions and the considered, official policy of the society. Experience will also speak for the desirability of having the policies of this society coordinated with those of the American Dental Association.

■ *Summary*

In summary, then, I would suggest several questions which the American Society of Oral Surgeons might consider profitably.

1. Is it desirable that the American Society of Oral Surgeons develop a more effective mechanism for the establishment of policy?

2. Should the program of the society be expanded in order that the information necessary to the development of sound policy, and the solution of the society's problems, can be made available?

3. Are the members willing to accept the cost of such an expanded program?

4. Is the leadership of the society prepared to foster the development of the democratic method in policy determination, and is the membership prepared to assume the responsibilities which such a process demands?

5. Is the society willing to coordinate its efforts with those of the American Dental Association in the interests of a more effective response to the profession's obligations to the public?

6. What is the objective of this society and what is it willing to settle for as its position in the complex of organized dentistry?

■ Great Inventions

The two greatest inventions of the human mind are writing—the common language of intelligence—and money—the common language of self-interest.—*Marquis de Mirabeau.*

Dentistry's role in interdepartmental hospital relations

■ *Fred A. Henny, D.D.S., Detroit*

Dentists are an integral part of the total health team and have much to contribute to the care of hospitalized patients. Because of the increasing quality of dental education, it is anticipated that dentistry will play an increasing part in hospital organizations. An attitude of mutual respect between members of the nursing, medical and dental professions is imperative if the cooperative effort that will result in superior patient care is to be attained.

Any statement defining the role of dentistry in the modern American hospital must of necessity include complete agreement with the statement of objectives of patient care as outlined by the Joint Commission on Hospital Accreditation in its release of May 1955 which is as follows:

> The objective of hospitals and physicians is to aid each other in the delivery of the best possible medical care to patients. To attain such a purpose requires full cooperation among medical staffs, governing bodies and administrative heads of hospitals.

This statement, of course, infers that a high degree of cooperation is mandatory if optimum results in patient care are to be achieved. The need for cooperation also applies to problems within the scope of dentistry, since it has been well established that the correlation of dental services and medical services results in a substantial increase in the over-all quality of patient care. It is of public benefit, therefore, for the professional services of well trained dentists to be utilized to the highest degree possible in the treatment of the hospitalized patient.

Dental education, although based on the same broad scientific background as medicine, specializes in detail not only in treatment but also in the anatomy, physiology and pathology of the oral cavity and masticating system. As a result, both undergraduate and graduate education in dentistry has been developed in such a fashion as to gain a greater understanding of the problems arising in this field both as local entities and also as they involve alterations in physical health.

Consequently, the chief contributions to the accumulation of knowledge regarding the various diseases, deformities, infections and management of trauma of the oral cavity and its associated structures have been made by investigators and clinicians with dental backgrounds, whereas medicine has expended very little educational effort in this area since it has generally accepted the premise that this was the chief responsibility of the profession of dentistry.

Presented at the Institute Workshop on Hospital Dentistry, co-sponsored by the Council on Hospital Dental Service, American Dental Association, the American Hospital Association and the American Medical Association, June 17-19, 1957, Washington, D.C.

Division of dentistry and oral surgery, Henry Ford Hospital.

To meet these responsibilities and to produce an ever higher level of quality of patient care, dentistry long ago established special fields of interest and study which today are the recognized dental specialties. Basically these include oral pathology, oral roentgenology, orthodontics, prosthodontics, pedodontics, dental anesthesiology, periodontics, oral surgery and dental research, in addition to the broad field of operative dentistry.

Investigators in these various fields frequently have mutual interests, and in many instances they have been of material assistance in the understanding and management of problems in another allied dental specialty. However, each specialty has a common background in the form of a dental education which is considered obligatory to the proper understanding and management of all problems indigenous to the oral region.

Ideally, the modern American hospital dental department has all of these specialties represented by staff personnel who have received formal graduate training in their chosen field. In many instances a given patient may require the cooperative effort of a majority of the dental staff to attain the finest possible end result, in addition to the cooperation of the medical department. An example of such cooperative effort is illustrated by a recent instance that occurred in the hospital with which I am associated.

The patient had a severe underdevelopment of the lower jaw with resultant malocclusion and cosmetic deformity. Although it was considered primarily a surgical problem, the solution required maximum cooperation from several other dental specialists as well as the department of medicine. Study models were obtained first by the orthodontist who also provided consultation regarding the development of relatively normal occlusion in the postoperative state.

After this consultation, the operation was designed and then many other contributions to the patient's care were required. First of all many of the teeth were carious and required extensive restorative work which was done by the operative dentist. Some impacted teeth as well as other teeth which were carious beyond repair were removed by the oral surgery resident. The periodontist successfully treated an incipient periodontal infection. The splints were then constructed by the orthodontist in cooperation with the pedodontist who was to insert them at the time of the operation.

Prior to operation, the patient was admitted to the hospital and was subjected to routine physical evaluation by a member of the medical staff. The operation was performed by an oral surgery team who sectioned the mandible bilaterally, extended it forward to a point of predetermined occlusion, and inserted cancellous bone chips into the resultant defect. The bone chips were obtained from the bone bank through the cooperation of the orthopedic department.

Here, then, were eight separate individuals pooling their knowledge to contribute to what eventually was an excellent cosmetic and functional result. Certainly the patient benefited greatly by this team approach to his problem.

In some dental specialties, notably oral surgery and dental anesthesiology, considerable additional emphasis has been placed on the basic sciences, physical diag-

nosis and general physical management of patients who are subjected to surgical procedures. In oral surgery, for instance, an entire year is spent reviewing the basic sciences at the graduate level, and additional time is spent in the study of general anesthesia so that in addition to the clinical study of oral surgery problems, the trainee is well equipped in general patient care. This, of course, is extremely important if the patient is to receive safe, concise and effective treatment.

From the foregoing, it is obvious that it is to the patient's advantage to have the best possible cooperation between the dental staff and all divisions of the hospital organization. In order to develop such relations, however, it is important for the staff members of the various hospital departments to understand the educational background and clinical contributions of the dental staff. There can be no room for a superior or monopolistic attitude on the part of either the medical or dental staff.

■ *Nursing Service*

In the area of nursing service there is need for much cooperation and understanding. Adequate nursing of dental inpatients is as imperative as it is for patients of any branch of medicine or surgery. Unfortunately, most nursing schools do not include much educational background on dentistry in their undergraduate curriculum. It becomes necessary, therefore, for the dental staff to aid the graduate nurses in developing a better understanding of dental problems. With the excellent background that most nurses possess, this is not difficult. They are almost universally interested in furthering their knowledge in this field, and a few meetings each year will do much to help them understand the nursing problems as related to the oral region.

■ *Laboratory*

The clinical laboratory plays a vitally important role in any hospital. Again, the dental department requires its services to function properly and adequately. Routine laboratory services include bacteriologic studies of organisms obtained during the course of root canal therapy, bacterial culture and antibiotic sensitivity tests to determine the most effective antibiotic for the treatment of cellulitis of dental origin, routine microscopic study of tissues removed during surgery, blood counts, smears and chemistry studies that are important as diagnostic adjunctives. The development of a teaching clinical pathological conference on a regular schedule is of prime importance. All of these efforts by laboratory personnel are necessary to the development of a truly effective dental service. In return, the dental service can contribute to the teaching program of the laboratory staff by providing instruction in clinical oral pathology to broaden the knowledge of the general pathologist regarding oral disease.

The clinical laboratory staff can also contribute greatly to research programs in dentistry because of their accumulation of experience in this field and their specialized knowledge of the individual basic sciences. Their spirit of cooperation is universally excellent and dentistry has profited greatly by it.

■ *Internal Medicine*

The internal medicine department is one of the most vitally important links

between the medical and dental services. Whereas dentists, as described previously, have much to contribute to patient care, they are in turn dependent on their associates in medicine for adequate preoperative surveys and for postoperative consultation when required. Many lesions, defects and traumatic incidents apparently localized in the oral region actually have systemic repercussions or backgrounds. Because of this, considerable emphasis has been placed on the study of physical diagnosis in both the undergraduate and graduate levels of dental education. In some hospitals, the clinical oral surgery training programs have achieved such a degree of excellence in this aspect that the medical department has chosen to accept the routine preoperative physical examination by the oral surgery resident as a satisfactory and adequate preoperative physical survey. This survey, of course, frequently uncovers physical defects and diseases that require special care, and in such instances the patients are referred to the proper division or department for additional diagnostic procedures and active therapy.

In most hospitals throughout the country, however, this arrangement does not exist, so that at the present time a majority of the members of dental services rely on their associates in medicine for preoperative physical examinations and postoperative consultation if complicated associated medical problems are present. Some patients exhibit physical backgrounds that tax the knowledge and capabilities of the most astute internist. Their assistance and cooperation are most urgently required and are received universally with appreciation and respect.

In my own particular institution, the division of oral surgery retains a regular medical consultant who sees all patients preoperatively who have major complications. He is also available for postoperative consultation if the indication should arise. It would seem, then, that the question of adequate preoperative survey is best decided at the local level, since the chief of medicine or surgery in each instance should be the person most capable of making the decision as to who is best qualified to carry out this preoperative examination.

Ordinarily, in large hospitals, routine preoperative physical examination is done by the general surgical resident and intern staff. In small hospitals where a training staff is not available, it is suggested that the dentist admitting patients to the hospital keep a supply of routine history and physical examination forms in his office and refer the patient to his family physician for history and physical evaluation within a 24 hour period prior to the patient's admission to the hospital. By arrangement with the hospital authorities, this can then be made a part of the hospital record and will not necessitate a special trip to the hospital by the physician involved.

It should also be kept in mind that several surgical specialties of medicine have attained such a high degree of specialization that although these men originally had a basic medical education they are no longer truly capable of doing a completely adequate preoperative medical survey. Here again the chief of medicine or surgery should be the one to decide whether additional medical consultation should be obtained in such instances.

■ *Anesthesiology*

Anesthesiologists and dentists have developed a very strong bond, for not only was general anesthesia discovered and developed by dentists to alleviate the pain of oral surgical procedures, but also there is a steadily increasing demand by patients for general anesthesia for oral surgery operations. The administration of general anesthetic agents is a procedure fraught with danger and should be undertaken only by those who have had an adequate educational background in their use.

Insofar as hospitalized patients are concerned, the only problem that arises is whether the anesthetist or anesthesiologist is trained adequately to administer an anesthetic when the surgery is in the path of the normal airway. Dental and oral surgical procedures cause complications in the administering of an anesthetic, and therefore some special study is necessary, even for the most gifted anesthesiologist.

The patients requiring general anesthesia for dental procedures formerly were confined to those with surgical problems. Recently, however, general anesthesia has been utilized for pedodontic procedures which allows general operative dentistry to be done for mentally handicapped children, children with cerebral palsy, or grossly maladjusted children who cannot cooperate under local anesthesia. This is indeed a wonderful public service and permits the solving of a severe dental problem yet requires the administering of only one anesthetic and the carrying out of one operative procedure.

Endotracheal intubation permits ideal working conditions in such instances and provides the added assurance of carefully controlled anesthesia with adequate oxygenation throughout the procedure. Under such careful anesthetic control, the results are universally excellent. Actually, such children may require protracted anesthesia of two or three hours duration, and since brain changes may already be present which automatically increase operative risk, it is my conviction that patients of this type always should have the advantage of thorough preoperative physical study and hospitalization during the operative procedure.

■ *Pharmacy*

The pharmacy does not pose much of a problem for the dental service. Drugs required in the outpatient dental clinic should be ordered in routine fashion through the hospital pharmacy. Drugs required for inpatients are ordered on the floor on the patient's order sheet, of course, and are handled similarly to all other inpatient medications. In rare instances, unusual drugs that are not normally stocked on the floor can be brought from the outpatient clinics for use by the dental staff.

Because of the fact that narcotics are under federal supervision and licensure, it is imperative that all personnel writing prescriptions for such drugs have adequate federal registration and that all drugs stored in an outpatient clinic be protected properly and be accounted for periodically. This is routine hospital procedure and requires no elaboration here. Purchase of other materials should be made through the purchasing department and should be requested by a form adopted for use by the individual institution. It must be kept in mind that if the purchasing office is allowed to obtain competitive bids on

materials, cost frequently can be reduced. Sufficient planning to allow for this delay should be a standard procedure in all hospital dental departments.

■ *Comment*

Dental education has progressed to the point where the profession can contribute greatly to the solution of many health problems. Because of the nature and quality of this educational program, dentistry can be expected to play a growing part in hospital patient care. An attitude of mutual respect between members of the nursing, medical and dental professions is imperative if the cooperative effort that will result in superior patient care is to be attained. It is possible to develop national hospital regulations to try to ensure this type of care, but the regulations must be sufficiently elastic to allow for the preservation of the dignity and professional privileges of everyone concerned and also allow the determination of the scope of dental care to be made in individual institutions, where individual abilities can be evaluated best. Personal aggrandizement and power politics initiated by minority groups in either medicine or dentistry must be kept under control if the patient is to receive the best possible hospital care.

The hospital's responsibility for patient care

■ *Robert R. Cadmus, M.D., Chapel Hill, N. C.*

The professional policy in hospitals has traditionally been set by the medical staff; however, final decision in such matters rests with the Board of Trustees. In the past they have usually followed the suggestions made by their medical staff. The hospital of today is made up of many groups, all of whom must contribute unselfishly if good quality patient care is to be obtained. In some localities this may require the dental staff to be patient in obtaining their requests for proper status in the hospital organization. It has already been demonstrated, however, that continued good quality work at the local hospital level by the dental staff will greatly improve their status and eventually solve their problems.

This is the second time I have had the privilege of discussing hospital dentistry with members of the dental profession. This has given me the opportunity to study the subject and to review the so-called "controversy" on the position of the dental staff in the hospital, which has been going on since about 1952. I have studied it from the standpoint of the American Medical Association, from the standpoint of the Joint Commission on

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Hospital Accreditation, and I have tried to study it from the standpoint of the American Dental Association and the American Society of Oral Surgeons. I am pleased that during these years, progress has been made. In many institutions, the staff is now a "medical and dental staff," and although practices differ widely in different institutions, there are many encouraging instances. Physicians, dentists, and hospitals are working in cooperation to the end that the patient will be served more satisfactorily.

Although I am a physician, I cannot speak for the American Medical Association; although a hospital administrator, I cannot speak for the American Hospital Association; although interested in accreditation, I cannot speak for the Joint Commission; and although I am associated with a university with a new dental school, I cannot speak as a dental educator. Therefore, I am speaking for myself.

It is necessary to involve the physician in this subject, and in some ways, the hospital is caught between the physician and the dentist in this controversy. It is not unusual for hospitals to be caught in the middle, and it is the hospital administrator's job to create, within his institution, a climate conducive to rendering quality hospital care.

The definition of the word "hospital" is broader than it has been heretofore and means not only bricks, mortar and beds, but rather, complete diagnostic, therapeutic, and preventive service. It also means education of health personnel and research. It also means ambulatory care and an interest in the total person, including the social and economic spheres. When one considers the total person, one also must necessarily include dentistry in its broadest definition.

The social structure of the hospital is more complex than that of a business organization or even a university. Social scientists have been studying the social structure of health organizations and much research and productive information awaits us in this area.

A real understanding of the position of the hospital in patient care requires some understanding of history. Hospitals, basically, have ecclesiastical roots and as they evolved, they also adopted some of the practices of both government and the military. Recently, they have moved from the tin cup charity of pest houses to institutions of healing and have become big business. This has occurred primarily in the last few decades with the coming of scientific medicine.

The hospital administrator has many bosses and his actions must please each. He is employed and is responsible to trustees and if he fails this group—uneasy rests his crown. He also serves the staff, both medical and dental, and if he fails to satisfy this group, likewise—uneasy rests his crown. He is responsible for a large group of personnel and he must keep this group effective and productive, yet with high morale. For, if he cannot stimulate his people to performance, again—uneasy rests his crown. And finally, he must serve the patient and the public for, if they are not satisfied with his performance, again—uneasy rests his crown. In these groups there are many social and cultural differences. There are problems of status, of cliques, and even of sex. Basically, the medical and dental staff is a man's world, whereas the employees' is primarily a woman's world, with the

nurses, technicians, clerks, therapists, and other female workers. Each group must be handled differently, for the administrator's relationship to the medical staff is one of leadership by nondirect means, whereas with the employees the traditional employer-employee relationship is maintained.

The title of this paper includes "responsibility," and in evaluating this term, one must consider who is legally responsible for the institution. This means, who is responsible for the total operation, for the safe building, for the operating personnel, for the financial stability, for the appointment of the medical and dental staff and for the legal affairs. It is apparent that the Board of Trustees holds this legal responsibility. Often trustees stop at this point and do not concern themselves with the problems of the quality of medical care. However, this is also their responsibility through their delegated medical and dental staff.

This point brings us to the crux of the problem, particularly when a dentist says that since he is legally able to practice without supervision outside of the hospital, what authority does the hospital have to limit him on the inside. Historically, trustees have delegated professional care to the medical staff. If, under the circumstances, the physicians recommend a policy such as no surgery without a physical examination by a physician, then the Board of Trustees accepts this suggestion of their advisers and within their legal authority, adopt this as an internal regulation. Trustees usually feel that they must accept the physician's advice in such matters, and they feel legally comfortable with the professional backing of the medical staff. I believe that trustees feel no compulsion to open their doors to other health workers including dentists, unless so advised by the medical staff. This is why I said earlier that part of this problem rests with physicians.

Perhaps so far in my remarks, I have showed only a negative side, whereas there is a wonderful, hopeful, positive side. Trustees are mindful of new ideas, mindful of the rapidly evolving hospital concept, and they have been indoctrinated recently in the importance of treating the whole patient, and obviously, dentistry is included in this broader concept.

In stressing the specific responsibility of the administrator, particularly as it affects dentistry, I feel that the administrator should recognize hospital dentistry as something more than oral surgery. He should see that there are dental instruments, personnel equipped to assist, and in general, the facilities should be made equally available to physician and dentist according to the ability of the institution. I feel that administrators should develop better charging technics, both in the outpatient and in the inpatient services, as we recognize some of the problems that short-term dental patients present.

There is much that the dentist should do to help in this matter. First, I suggest that the dentist be glad of heart in believing that the answer to his liking is coming, that he should believe in evolution, that he should believe in the unevenness of progress, which is a part of the free enterprise system, and that he should be guided by goals and not be wedded to methods. I suggest that he accept the philosophy that the best medical care is provided when a physician performs the presurgical physi-

cal examination. I believe that the public will demand this, particularly in the hospital setting. This is not discrimination against dentists because, often, there are restrictions placed on general practitioners or on other specialties in much the same manner. I suggest that we play down the definitions and professional boundaries and in this respect, I recall part of an editorial in the *Journal of the American Medical Association*,[1] "The Oral Cavity and Disease," which states:

> Sir William Osler has called the oral cavity a mirror of the rest of the body . . . The physician and the dentist working together have provided a much better understanding of oral medicine, and in mutually reciprocating their clinical findings, as well as their scientific research, they have markedly improved the over-all care of the patient. The field of radiation protection may well be the impetus to enjoin in fact, not just in theory, the two health specialties.

I believe that definitions and boundaries are best settled locally rather than at a national level, and on the basis of mutual professional trust and respect. I feel that if an individual dentist is qualified and able to provide good dental care, his work will be recognized and his demands will be met and understood. Dentistry is making great strides in education and this will automatically help solve much of the problem.

I feel that we have an opportunity and a challenge to get our ideas right and our concepts accurate. Then we should seek understanding and cooperation to put these ideas across. I suggest that dentists continue to prepare themselves educationally and that they should continue to stimulate thinking on hospital dentistry, that they should continue to probe for weaknesses or shabby thinking on the part of hospital administrators and trustees, and always think in terms of patient care rather than status, economics, self-interest, or any basis other than what is best for the patient.

If we all think big, we will be able to move mountains and solve our problems constructively.

1. The oral cavity and disease. Editorial. J.A.M.A. 165:159 Sept. 14, 1957.

■ CONCEIT

Men who "know all about it" can never learn anything; while those who are most learned remain always students.—*Richard Harris. Illustrations in Advocacy.*

Dentistry in Veterans Administration hospitals

■ *Joseph O. Mona,* D.D.S., Washington, D. C., and Charles M. Belting,† D.D.S., M.S., Chicago*

A steadily increasing number of American hospitals have inaugurated active dental departments. At present approximately 35 per cent of all hospitals offer dental services. All Veterans Administration hospitals have dental departments which operate on an administrative level equal to other medical departments. Since the Veterans dental program has been active since 1921, the experiences accumulated will be helpful to hospitals contemplating the organization of dental services. Furthermore, the amount and variety of dental clinical material that is available in VA hospitals provide a unique opportunity for clinical research.

During the past decade, there has been a slow but steady increase in the percentage of hospitals in the United States reporting a dental department, from 26 per cent in 1945 to 35.1 per cent in 1956.[1] In spite of this encouraging progress, these data reveal a deficiency in the provision of a complete health service by at least 64.9 per cent of the hospitals in the United States and a fertile area for development and improvement. The Veterans Administration has maintained a complete dental department in all its hospitals since the integration of dental and medical services by Act of Congress in 1921.[2] During these past 36 years, the Veterans Administration has gained a body of experience in the administration and operation of hospital dental services which may be helpful as a pattern for the development of similar services in those hospitals which do not possess such a service as yet. It is the purpose of this article, therefore, to describe these administrative and operational activities in order to show the contributions that an integrated dental service can make to modern hospital medical care.

■ *Mission*

The dental program of the Veterans Administration functions for the purpose of rendering dental health services for veteran beneficiaries in conjunction with other elements of the Department of Medicine and Surgery and in accordance with the over-all policies announced by the Chief Medical Director.[3] This integrated comprehensive health program entails an emphasis on complete diagnosis and total patient rehabilitation. The objective of the dental program is to provide the highest standard of dental care possible within the framework provided by law.

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1. Guide issue, Hospitals, J.A.H.A., Aug. 1, 1956, p. 56.
2. Public Law 47, 67th Congress, Title I, Section 13, Aug. 9, 1921.
3. Veterans Administration Department of Medicine and Surgery, Manual M-4, Program guide, dentistry. Washington, D.C., Government Printing Office, May 16, 1955.

■ *Organization and Administration*

The dental departments in VA hospitals are maintained as an integral part of the hospital organization. Each dental department is under the immediate supervision of a chief of dental service who functions on the same administrative level as the chiefs of the other professional services such as medicine, surgery, psychiatry and neurology, laboratory, radiology or physical medicine, all of whom are responsible to the manager through a director of professional services. In this way, the chief of dental service attends and participates in regularly scheduled staff conferences, held by the director of professional services, on the same basis as the chiefs of other services, where administrative as well as professional policies are formulated and announced. Administrative parity likewise extends to opportunities for advancement. This type of integration stimulates the highest type of interprofessional cooperation.

VA hospitals now number 173 in the United States and range in size from 56 to 3,300 operating beds. The dental staffs in these hospitals range from one dentist supported by two auxiliary personnel to ten dentists supported by 19 auxiliary personnel. The largest number of these hospitals, however, have an operating capacity in the neighborhood of 500 beds. The dental staff in a hospital of this size usually consists of three dentists supported by six or seven auxiliary personnel. The auxiliary personnel include dental assistants, dental hygienists, dental technicians and clerk-stenographers.

The chief of dental service is charged with the responsibility of planning, administering and directing the hospital dental program. His administrative responsibilities consist of the preparation of an estimated budget for the ensuing year, maintenance of records and statistical data of the activities of the dental service, preparation of performance and efficiency ratings for personnel of the service, and requisition of supplies and equipment. His professional responsibilities consist of the integration and prescription of medicodental patient care and the supervision of an inservice training program, as well as dental internship and residency programs where such programs exist. He also conducts dental staff conferences regularly for the purpose of relaying pertinent information to and from personnel under his supervision so that the dental staff becomes a vital and active element in the operation and management of the entire hospital organization.

The link between the dental phase of medical care and other aspects of medical care consists of a dental clinical record, the primary purpose of which is to record oral findings and dental treatment recommendations for review of the physician on whose ward the patient is assigned. This interchange of information is the basis on which the dental phase of medical treatment is prescribed.

The dental service commonly is divided into various sections depending on the size of the staff and the type of service rendered by the hospital. These include oral diagnosis and treatment planning, restorative dentistry, periodontic, prosthodontic and oral surgery sections supported by oral roentgenology and dental laboratory units. Consultants and attending dentists in the various dental

specialties are utilized when their services are needed. It has been the experience of the Veterans Administration that the professional responsibilities of a chief of a hospital dental service require a broad experience in general dentistry, not necessarily specialized experience in oral surgery.

■ *Professional Functions*

The dental staff in the VA hospital has three main professional functions—diagnostic, therapeutic and educational.

DIAGNOSTIC FUNCTION—A diagnostic service is provided for all patients admitted for hospitalization as an integral part of their required physical examination and also as a consultation service. The philosophy of this procedure is based on recognition of the fact that dentistry has developed the highest degree of competence in the oral region and that dental disorders create a health hazard in the same manner as do disorders in any other part of the body. A physical examination cannot be complete, therefore, unless it includes the oral region and its related structures. Every effort is made to make the diagnostic procedure as complete as possible but when this is not possible, because of limitations of time or personnel, at least a screening type of examination is given.

During fiscal year 1957, this procedure resulted in the initial recognition by the dental service of approximately 400 oral malignancies where the admission diagnosis was unrelated to this condition. Countless other oral lesions and abnormalities having direct or indirect medical significance were identified and brought to the attention of the physician in whose charge the care of the patient was assigned. Examples of such lesions and abnormalities include chronic infections, cysts, benign neoplasms, hormonal and nutritional disturbances, developmental and metabolic disorders and functional deficiencies.

THERAPEUTIC FUNCTIONS — Dental therapeutic services in a VA hospital may be divided into three major categories; primary, supportive and outpatient.

Primary Dental Care—Primary dental care is provided for dental disorders which properly may be classified as acute medical and surgical conditions that fall within the scope of dental responsibility and for which hospitalization is recommended by the chief of dental service. Examples of such conditions include fractures of the maxilla and mandible, acute infections of the jaws and large cysts of the jaws.

In larger hospitals, where the number of patients admitted primarily for dental disorders warrant it, a number of beds in one section of a surgical ward commonly are assigned to the dental service. In smaller hospitals, a dental patient is assigned a bed on a surgical ward as the occasion arises. All dental patients are admitted on recommendation of the chief of dental service and are given a physical examination by the physician on whose ward the patient is assigned. Pertinent laboratory requests, orders, and progress notes are made by the dentist in charge. In the event treatment of the patient requires utilization of the general operating room, the dentist in charge functions as a subdivision of the surgical service using a member of the surgical staff as his first assistant. The final

summary for patients recommended for discharge by the dentist usually is the joint responsibility of the dentist and the ward physician. In preparation of a final summary, the *Standard Nomenclature of Diseases and Operations* is utilized in all instances.

It is of interest to note that fractures of the maxilla and mandible, and acute infections and large cysts of the jaws are included in most of the existing schedules of benefits and the fee schedules of Blue Cross-Blue Shield and other commercial programs.[4] Until recently, little consideration has been given to the fact that these health services usually are rendered legally by other than physicians and surgeons so, with few exceptions, no provisions have been made for payment by the insurance companies directly to the dentist for such services. The American Dental Association and the American Society of Oral Surgeons, however, have now initiated steps to correct this paradox in the enabling statutes under which these insurance programs operate, and there is reason to believe that it will soon be corrected.[5] These anticipated changes in the statutes will make it not only professionally desirable, but a practical necessity, for hospitals providing such services to have a dental staff.

Supportive Dental Care—Supportive dental care in VA hospitals is provided when, in the joint opinion of the chief of dental service and the ward physician, it is probable that dental treatment will have a direct and material bearing on treatment of the disability requiring hospitalization, or when the patient is suffering from a chronic disability requiring continuing medical attention, or when it is anticipated that a patient will be hospitalized for prolonged periods.[4] Innumerable medical conditions, the proper resolution of which commonly requires adjunctive dental treatment, could be mentioned. Some of the commoner ones are arthritis, endocarditis, hypertension, colitis, gastritis, gastric or duodenal ulcer, iritis, otitis media, sinusitis, osteomyelitis, nephritis, diabetes and neurosis.

Dental therapy for these disorders is directed toward one or a combination of three objectives—removal of oral pathosis, restoration of function and restoration of appearance. Removal of oral pathosis, considered as a focus of infection or as a burden on the already reduced resistance of a patient, is a well established medical practice. Restoration of masticatory function likewise has therapeutic implications, especially in instances of gastrointestinal disorders and debilitating diseases. Restoration of appearance also commonly has therapeutic implications in patients with neurotic disorders. This type of service also may have prophylactic as well as therapeutic implications and has a well established corollary in medical practice. It would be unthinkable, for example, for a surgeon to remove a tumor from the face without making a plastic repair for cosmetic purposes. The mouth likewise is especially important in the expression of character and feeling as well as sound, and its defects often are associated with psychogenic disturbances. In fiscal year 1957, supportive dental care, having a direct and

4. American Dental Association, Council on Federal Dental Services, and others. Recent developments in Defense Department's dependents' medical care program. J.A.D.A. 54:696 May 1957.

5. American Dental Association, Council on Legislation. Dentist's participation in Blue Shield plans under state laws. Council on Legislation Bulletin, May 15, 1957.

material bearing on treatment of the disability requiring hospitalization, was prescribed in 19 per cent of the patients hospitalized for general medical and surgical disorders.

Maintenance dental care, of course, is indicated for all patients with chronic disabilities requiring prolonged hospitalization. These disabilities consist mostly of tuberculous and neuropsychiatric disorders, the treatment of which accounts for over 50 per cent of the beds in VA hospitals. In fiscal year 1957, some form of dental therapy was prescribed for approximately 42 per cent of these patients.

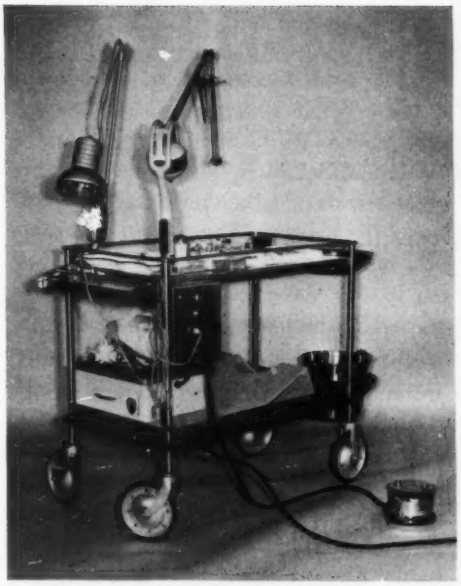
In order to facilitate the rendering of dental service to various types of severely handicapped, paralytic and nonambulant patients, several items of specialized equipment have been devised by members of the dental services in VA hospitals. Two types of mobile dental carts now in use, especially designed for bedside care, are shown in the illustration. Other innovations include specialized headrests for bedridden patients, headrest attachments to wheel chairs, footrests and oral devices for use by the bilateral arm amputee.

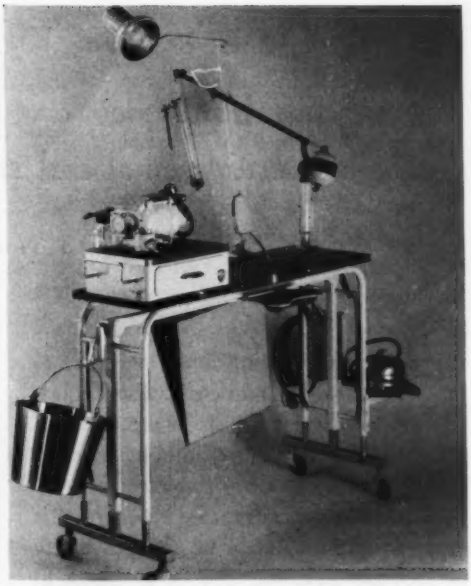
Outpatient Dental Care—Outpatient dental care frequently is furnished in VA hospitals in accordance with the provisions of existing legislation and regulations promulgated by the Administrator. In general, these regulations limit eligibility to those beneficiaries having service-connected dental disabilities or having dental disabilities determined to be aggravating a service-connected systemic disorder. Emergency dental treatment for relief of pain or extreme discomfort also may be rendered on an outpatient basis for humanitarian reasons. In addition, some hospital patients return for completion of prescribed treatment on a nonbed-occupant basis when they become ambulant and may be discharged before maximum hospital benefits actually have been received.

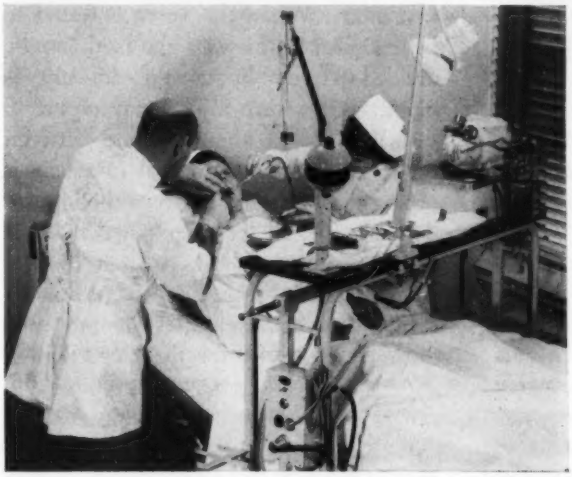
EDUCATIONAL FUNCTIONS—In keeping with the philosophy that an educational program is necessary in any organization that strives to increase its efficiency and to render progressively better service, the dental services in all VA hospitals conduct inservice training programs for their professional and auxiliary personnel. This philosophy also extends into the broader area of the profession as a whole, and includes dental internship and residency programs. Twenty-four residencies in oral surgery, prosthodontics and periodontics, and 23 internships are now being conducted at 28 VA hospitals under the general direction of the hospital deans committee and the direct supervision of the hospital chief of dental service. These programs are approved by the Council on Dental Education of the American Dental Association and are encouraged at all hospitals having an association with medical and dental schools. They constitute a significant contribution to postgraduate education and specialty training in dentistry. In addition, the variety of clinical material available in VA hospitals creates a unique opportunity for clinical research activity which is conducted by many members of the dental staffs and is reported on from time to time in scientific journals.

■ *Summary*

There is increasing recognition on the part of hospital management as well as the health insurance industry that a complete health service program must in-







Above left—Mobile dental cart for bedside use based on design described by S. A. Hutt.[6] Above right—Dental operating assembly mounted on over-bed table, a modification of mobile dental cart developed by L. Delicandro, VA Supply Depot, Hines, Ill. Below—Dental operating assembly mounted on over-bed table showing its method of utilization for bedridden patient

clude adequate provision for dental health services as an integral part of the hospital program. Many hospitals, however, do not yet provide such services. The organization, administration and functions of the hospital dental program in the Veterans Administration, which has operated an integrated medical and dental health service since 1921, therefore, might serve as a pattern for the development of similar services in those hospitals which do not possess such services.

6. Hutt, S. A. Mobile auxiliary dental unit for hospitals. J.A.D.A. 44:34 Jan. 1952.

Injuries to the inferior dental and mental nerves

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Injuries to the inferior dental and mental nerves are fairly frequent complications of accidental trauma or operative procedures involving the mandible. The resulting symptoms may occasion much annoyance to the patient, and the dentist is often at a loss to estimate the possibility of recovery and the time it is likely to take. The following article may throw some light on this difficult problem.

■ *Injury to the Inferior Dental Nerve*

Although the inferior dental nerve is enclosed in a bony canal, the bone itself is prone to trauma.

The commonest causes of injury to the nerve are the surgical removal of teeth or roots and fractures of the mandible. The tooth primarily concerned is the third molar, and damage to the nerve may occur in two ways during its removal. First, if it is necessary to elevate root apexes or otherwise use instruments in the region of the root tips, the nerve may be crushed or cut. Second, the relation of the roots to the nerve and the other contents of the canal may be such that injury cannot be avoided. The roots of the third molar may be grooved where the nerve and vessels pass, and sometimes a fragment of the wall of the inferior dental canal is found attached to the extracted tooth. Beauchamp[1] and Jackson[2] reported instances of grooving of the roots of the second molar.

An occasionally reported anomaly is the perforation of the roots of the third molar by the contents of the canal.[3-6] Parfitt[7] reported an instance of perforation by the nerve of the roots of an unerupted first molar. When the nerve is found to be encircled in this way, the tooth can be divided to free it, but even if continuity is maintained, severe injury may occur.[8]

Fracture of the mandible between the mandibular and mental foramens is often complicated by injury to the inferior dental nerve. In the more usual types of civilian fractures, the nerve may be contused or broken but there is no loss of substance. Similar injuries are produced during osteotomies for the correction of

1. Beauchamp, W. S. Severence of mandibular nerve during extraction. Brit. D. J. 83:259 Dec. 19, 1947.

2. Jackson, M. Relationship of impacted lower second molar to inferior dental canal. Brit. D. J. 91:294 Dec. 4, 1951.

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4. Hoare, E. A. S. A case of perforation of third lower molar by mandibular nerve. Brit. D. J. 47:1126 Oct. 15, 1926.

5. LaFleur, A. M. Anomaly of lower third molars. J.A.D.A. 24:1221 July 1937.

6. Repass, F. G. Impacted right and left mandibular third molars with inferior dental nerves passing through mesial roots. J. Oral Surg. 4:243 July 1946.

7. Parfitt, J. B. Case of inferior dental nerve perforating the roots of the lower first molar. Brit. D. J. 58:424 May 1, 1935.

8. Austin, L. T. Perforation of roots of impacted lower third molar by contents of mandibular canal. Am. J. Orthodont. & Oral Surg. (Oral Surg. Sect.) 33:623 Aug. 1947.

mandibular malformations. Loss of large amounts of bone such as may occur in gunshot wounds results in loss of considerable lengths of nerve, and one such patient I have seen has had complete anesthesia of his lip and chin for 40 years. Nevertheless, full return of sensation after removal of the whole of one side of the mandible has been reported.[9] This extreme type of injury has been excluded from the 50 cases reported here.

Other causes of nerve injury are the enucleation of cysts and the removal of sequestrums. Acute inflammatory conditions, either in the form of alveolar abscesses or of osteitis, sometimes are accompanied by symptoms of nerve damage which may not resolve for several weeks. Rarely, pressure from a cyst may result in some degree of anesthesia.

■ *Injury to the Mental Nerve*

Injury to the mental nerve usually is caused by the removal of unerupted teeth or roots in the bicuspid region. The mental foramen is unfortunately situated for such procedures, and the mental nerve is exposed to damage either by instrumentation within the bone or during the reflection of mucoperiosteal flaps. Even when the extraosseous part of the nerve is seen and every effort made to preserve it, a certain amount of trauma often is inevitable. The variable position of the foramen may result in injury to the nerve during operations in the molar as well as the bicuspid regions.

Lacerations of the lip caused by extraoral trauma can produce injury to the nerve similar to that caused by incisions for intraoral operations. Occasionally, branches of the nerve are cut during minor operations on the lip, producing small regions of anesthesia.

Among the less common causes of injury is the excision of hyperplastic tissue that has been produced by chronic denture trauma. In these instances, advanced alveolar resorption results in the mental foramen occupying a superficial position, sometimes on the crest of the ridge. Prosthodontists are familiar with the trying circumstance of pain caused by denture pressure over the foramen.

In a small number of patients paresthesia of the lip occurs under similar circumstances.[10] One of the writer's patients suffered from this complaint. Another, a boxing enthusiast, complained of labial paresthesia after a violent blow on the side of his chin. A third suffered from anesthesia of the mental nerve, apparently resulting from pressure over the mental foramen or prolonged tension on his lip during conservative treatment.

■ *Signs of Injury to Inferior Dental and Mental Nerves*

If the inferior dental nerve is damaged distally to the point at which it divides into its mental and incisive branches, the symptoms are substantially the same as if the mental nerve alone is injured. The only difference likely to be observed is that the teeth anterior to the injury exhibit some degree of altered sensation. Although it is often impossible to distinguish between injury to the mental nerve and to the inferior dental nerve in the bicuspid region, the teeth are affected

9. Hopper, F. E. Personal communication, 1957.

10. Siegel, B. Paresthesia of lower right lip resulting from pressure of lower full denture on mental nerve and foramen. J.A.D.A. 45:40 July 1952.

only if the inferior dental nerve or its incisive branch is involved.

The principal sign of injury to either nerve is therefore anesthesia or paresthesia of the lower lip and chin. The affected region generally is sharply defined. It is bounded medially by the midline and laterally by a line extending downward and slightly backward from the corner of the mouth to the lower border of the mandible which forms the inferior boundary. The whole of the lower lip and the anterior surface of the chin are, therefore, involved if either nerve is completely nonfunctional. Intraorally the inner surface of the lip and the adjacent labial surface of the alveolar process are similarly affected, but the patient is much less aware of this. He will complain of a numb sensation in his teeth, however, if the inferior dental nerve is injured.

Complete anesthesia is seldom permanent but occasionally persists for several months. In a current patient, anesthesia persisted for nine months but was followed by a substantial degree of recovery. In another patient, anesthesia of six months' duration was followed by a painful paresthesia which the patient stated was worse after an additional six months. One patient in my experience has had complete anesthesia in the distribution of the mental nerve for 13 years after a mandibular fracture.

Paresthesia may follow anesthesia or it may be the first symptom of which the patient complains. Sometimes it is the first indication of recovery and disappears as normal sensation returns, but in other instances it is apparently a permanent condition.

The nature of paresthesia varies considerably. It may be a slight localized tingling sensation, a feeling as if cold water were being poured over the lip or as if hairs were lying on the skin, a hypersensitivity to thermal or tactile stimuli, a feeling of swelling, pins and needles, burning, aching, or occasionally actual pain. Sometimes the patient states that the symptoms are intermittent, perhaps being present only in cold weather. Rarely the patient may complain that the symptoms are becoming worse with the passage of time. It is noteworthy that whereas anesthesia may be tolerated with equanimity, paresthesia can cause considerable distress.

■ *Nature of the Injury*

Sometimes it is evident that a nerve has been divided. It may have been cut in the hope of avoiding more extensive injury or have been hopelessly involved in an operative procedure. In rare instances, the roots of an extracted molar may show unequivocal evidence of penetration by the inferior dental nerve. Sometimes an attempt to protect the mental nerve results in the preservation of a small block of bone containing the foramen from which a few strands of nerve tissue depend, limp and disconnected, the tension on the reflected flap and the use of a retractor having eventually torn the nerve apart. In many instances, however, the damage must be attributed somewhat indefinitely to the reflection of a flap or to extensive instrumentation in the region of the canal, or, even less satisfactorily, to the simple extraction of a tooth. In these patients, the trauma may vary from slight stretching or contusion to a complete local destruction of the nerve.

When the mandible is fractured, the

nerve is not always damaged even in the presence of small degrees of displacement. It is likely that in many nerve injuries from this cause, the nerve is stretched by separation of the fragments or crushed by their overriding position.

Thoma and co-workers[11] described an instance of neurorrhaphy where investigation of a repaired mandibular fracture showed that the posterior part of the nerve had taken up a position on the lingual side of the mandible between the bone and the mucosa, indicating that the nerve had divided some distance anterior to the site of fracture and that portion anterior to the fracture had been avulsed from the canal.

It seems clear that there are two types of injury. The first consists of minor degrees of contusion and perhaps stretching where the peripheral part of the nerve does not degenerate and sensation may return within a week or two or even within 24 hours. The second type consists of more severe insults, not necessarily involving loss of physical continuity of the nerve but resulting in degeneration of that part peripheral to the injury. Recovery then depends on regeneration of the nerve which may be a prolonged process that may require months rather than weeks.

From the foregoing it would appear that patients having these conditions should be readily divisible into two categories from their history alone. This, however, does not seem to be possible, and there is no clear dividing line that would enable a diagnosis of mild or severe injury to be made. Except in those instances where recovery is very rapid and where the injury can be considered to have been very slight, the nature of the injury, contusion, stretching or partial or complete severance, does not appear to be as important as might be thought. This is illustrated by a bilateral mandibular osteotomy described by Johnson and Jakubs.[12] During the operation, one inferior dental nerve was divided and the other preserved. Anesthesia followed on both sides and persisted for six weeks. Final recovery was somewhat delayed on the side where the nerve was cut; 13 weeks were required as opposed to ten but in view of the variable time needed to recover from other nerve injuries in the present series, this difference is small.

When a satisfactory degree of recovery does not take place, it is probable that part or all of the fibers are so malaligned that regeneration is not possible. In such circumstances, operative reconstitution of the continuity of the mandibular canal and realignment of the nerve ends can be carried out. In one of the instances of neurorrhaphy described by Thoma,[11] normal sensation was restored within the remarkably short time of 23 days in a patient who had suffered from paresthesia for 18 months. Instrumentation across the canal is not an insuperable obstacle to repair. Cupar[13] burred through the inferior dental nerves of rabbits and found that the callus resulting from the operation became recanalized, which allowed the ends of the nerves to come together.

11. Thoma, K. H.; Johnson, F. G., and Cascario, H. Cases of neurorrhaphy. Am. J. Orthodont. & Oral Surg. (Oral Surg. Sect.) 30:218 April 1944.

12. Johnson, W. B., and Jakubs, S. Single stage bilateral ostectomy of mandible. Oral Surg., Oral Med. & Oral Path. 9:801 Aug. 1956.

13. Cupar, Ivo. Regeneration des nervus alveolaris inferior. Zschr. Stomat. 36:355, 1938

■ *Fifty Instances of Injury to Inferior Nerves*

In an attempt to assess the progress of injuries to the inferior dental and mental nerves, 50 patients who suffered from these conditions and who had been kept under observation for at least six months or until recovery took place, were chosen at random. They were divided into four categories according to the cause of injury; in 12 mandibular fractures had occurred; in 14 bicuspids had been removed, and in 11, third molars had been removed. The 13 remaining patients were classed as miscellaneous. Among these, such things as inflammatory conditions, removal of other teeth and roots, sequestrums and cysts and other minor surgical procedures had caused the difficulty.

For the purpose of the investigation, a patient was considered recovered when symptoms were slight or absent. Eighty per cent of the patients described as recovered were symptom free.

The table shows the condition two months and six months after injury of the patients who had had fractured mandibles, bicuspids removed or third molars removed.

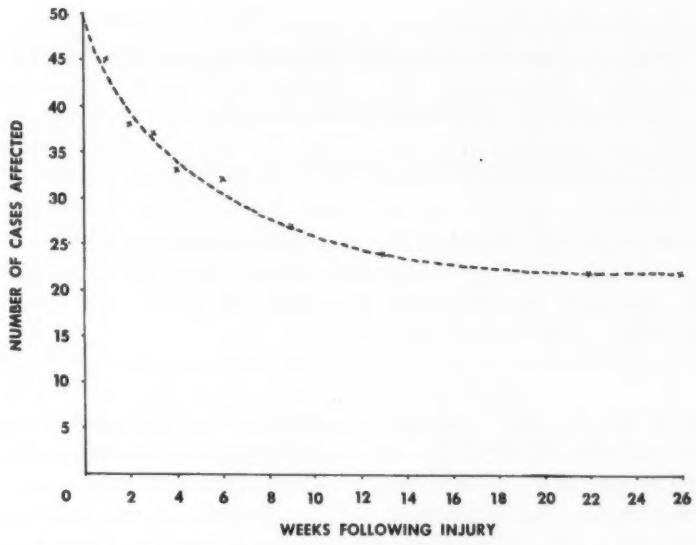
From this analysis it appears that recovery from injuries produced by fractures of the mandible and operations in the bicuspid region is both more rapid and more certain than is the recovery after third molar removal. This could be accounted for by the fact that third molar operations tend to produce more trauma, that the nerve is less easily observed and avoided when third molars are removed, and that the distance which a regenerating nerve must cover is greater after third molar extraction than after bicuspid removal. In fractures of the mandible, it is likely that the main obstacle to repair is malalignment of the two parts of the canal when the nerve has been severed.

The illustration indicates the observations made of the 50 patients with nerve injury. They are considered collectively. It will be seen that 22 of the patients still suffered from a considerable degree of disability at the end of six months, and from the form of the curve it would appear that the chance of further improvement is slight. Sixteen of the patients were followed for an additional six months. Only one recovered during that time. Eight patients have been observed for five or more years. None of these has recovered.

Although the result of these investi-

Table • Condition of patients who have had fractures of mandible, or bicuspids or third molars removed

Type of injury	No. of patients	No. recovered at 2 months	No. recovered at 6 months	No. remaining affected at 6 months
Fracture of mandible	12 (100%)	8 (67%)	8 (67%)	4 (33%)
Removal of bicuspid	14 (100%)	8 (57%)	10 (71%)	4 (29%)
Removal of third molar	11 (100%)	2 (18%)	4 (36%)	7 (64%)



Progress in 50 patients after injury to inferior dental and mental nerves

gations is disturbing, it is well known that many patients cease to return for observation when their symptoms cease. It is probable, therefore, that the chance recovery is greater than is indicated in the illustration.

■ *Conclusions*

1. Not less than 50 per cent of patients suffering from injuries to the inferior alveolar and mental nerve can be expected to recover in 11 weeks.

2. The possibility of spontaneous recovery after six months is slight.

3. Injuries resulting from third molar operations recover much less satisfactorily than those resulting from fractures of the mandible or from bicuspid operations. — *Department of oral pathology, Sutherland Dental School.*

Postextraction facial inflammation and edema treated by antibacterial drugs and streptokinase intramuscularly

■ *Joseph M. Miller,* M.D.; John A. Surmonte,* M.D.; Milton Ginsberg,* M.D., Fort Howard, Md., and Frank B. Ablondi,† A.B., Pearl River, N. Y.*

Recent clinical investigation[1] indicated that inflammation and edema might be alleviated by the use of an antibacterial drug and streptokinase intramuscularly. In 64 patients with a wide variety of conditions associated with inflammation and edema, excellent results were obtained in 45, good in 17 and poor in 4. The four poor results were obtained in one patient with extensive decubitus ulcers which were resistant to all forms of treatment, in two patients with arteriosclerotic vascular disease with gangrene in whom the blood supply was poor, and in one patient with thrombotic hemorrhoids who was given insufficient treatment. In the group there were two patients with inflammation and edema after tooth extraction whose clinical course was favorably influenced by such treatment.

The reason for the response to the injection of streptokinase is not completely understood. It is known, however, that the edema fluid in inflammation contains a large amount of fibrin. The presence of this substance in the affected tissues and the formation of small thrombi in the arteries, capillaries, veins and lymphatics of the region help localize the damaged region. This walling-off process forms a limiting membrane about the region of inflammation.

In the past, this barrier has been regarded correctly as a beneficial structure, since it inhibited the spread of the infection. The preservation of the limiting membrane was considered a basic surgical necessity.

Early in the use of the antibacterial drugs, it was observed that they were of little value in the treatment of abscesses, walled-off cellulitis, or similar infections. Being borne by the blood, the humoral defenses of the body and the administered antibacterial drugs could not pass through the barrier from without the lesion any more than pathogenic bacteria could pass through the membrane from within the region.

Streptokinase apparently can change this limiting membrane by a modification of the biochemical environment. Streptokinase indirectly acts on plasminogen in

*Surgical service, Veterans Administration Hospital.

†Lederle Laboratories Division, American Cyanamide Company.

1. Miller, J. M., and others. Clinical experience with the injection of streptokinase intramuscularly in the treatment of infection and edema. Maryland M. J. 4:188 April 1955.

the euglobulin fraction of blood serum with the formation of plasmin. Plasmin seemingly produces a lysis of fibrin with a resultant decrease in viscosity of the edema fluid. The circulation to the affected region is improved, and so the amount of humoral defenses of the body and the quantity of administered bacterial drugs reaching the bacteria are larger; the result is an accelerated resolution of the inflammation.

A streptokinase-streptodornase mixture (Varidase) was used as the source of streptokinase, since a pure preparation of streptokinase has not yet been made. The effect achieved by the mixture can be ascribed to the action of streptokinase, since the observed therapeutic effects were not produced by the intramuscular injection of a pure preparation of streptodornase.

Streptokinase-streptodornase was dissolved in physiologic saline solution so that the final concentration was 10,000 units per cubic centimeter. The solution was stored in a refrigerator when it was not being used. A fresh solution was made daily. Five thousand units of streptokinase-streptodornase in 0.5 cc. of physiologic saline solution was injected intramuscularly twice daily until six doses had been given, or more if the severity of the inflammation made it necessary.

To obtain good results with the intramuscular injection of streptokinase, an adequate circulation in the involved region must be present. The number of injections must be large enough to insure beneficial action. Streptokinase should not be given to patients with defects in the clotting mechanism, because of the possibility of hemorrhage.

Since the limiting membrane about the site of inflammation is removed by the intramuscular injection of streptokinase, the infection may spread; therefore, such treatment must be accompanied by the administration of a chemotherapeutic drug or an antibiotic agent. The removal of the barrier likewise permits more effective action of the drugs, since the membrane apparently keeps a sufficient concentration of the drugs in the circulatory medium from reaching the infective agents.

■ *Report of Cases*

CASE 1—A 38 year old white man was admitted to the medical service of the hospital on August 21, 1954, with hypertensive cardiovascular disease. Three hundred thousand units of aqueous procaine penicillin G was given intramuscularly twice a day from September 7 through October 8.

On September 20, after a nerve block had been induced with 4 cc. of a 2 per cent solution of procaine hydrochloride with 1:50,000 epinephrine, five teeth were extracted from the right maxilla because of caries. A moderate degree of edema of the right side of the face followed. On October 4, after the same anesthesia had been administered, six teeth were extracted from the left maxilla. On September 29, a considerable degree of edema and ecchymosis were present in the left cheek and infraorbital region. Five thousand units of streptokinase-streptodornase in 0.5 cc. of physiologic saline solution was given intramuscularly twice a day from September 29 through October 1, for a total of six doses. On September 30, some diminution of the swelling of the

Patient, Case 2. Above left: September 29, 1954, before start of treatment. Above center: September 30. Above right: October 1. Below left: October 5, just after extraction of six teeth from left maxilla. Below center: October 6. Below right: October 7. (Illustration courtesy of Postgraduate Medicine)

face had occurred, and on October 2 the edema had disappeared. The ecchymosis started to be absorbed on October 2.

On October 4, after the same anesthesia had been administered, 11 teeth were extracted from the mandible. A moderate degree of edema of the face followed. The ecchymosis on the left side of the face was gone by October 7. The wound in the upper right alveolar ridge healed satisfactorily. The patient was discharged from the hospital on October 8, 1954.

CASE 2—A 65 year old man was admitted to the medical service of the hospital with syphilitic cardiovascular disease. The patient was given 300,000 units of procaine penicillin G in aqueous solution intramuscularly twice daily from September 17 through October 6.

On September 27, after a nerve block had been induced with 4 cc. of a 2 per cent solution of procaine hydrochloride with 1:50,000 epinephrine, six teeth were extracted from the right maxilla because of caries. On September 29, a severe de-

gree of edema of the right side of the face was present (see illustration, above left). Five thousand units of streptokinase in 0.5 cc. of physiologic saline solution was given intramuscularly twice a day, from September 29 through October 6. The edema of the right cheek began to subside on September 30 (illustration, above center), had diminished much more on October 1 (illustration, above right) and had disappeared on October 4.

Because additional teeth were to be extracted, treatment with streptokinase was continued beyond the time of the usual termination to afford pretreatment for the tooth extractions to follow, that edema might be prevented or moderated. On October 5, seven teeth were extracted from the left maxilla with the patient under the same anesthesia (illustration, below left). On October 6, a minimal degree of edema, considerably less than that seen on the right side, was present (illustration, below center). On October 7, the swelling was diminished in amount (illustration, below right). On October 8, the edema had disappeared. The patient was discharged from the hospital on October 8.

■ *Comment*

The appearance of streptokinase has produced a change in thought about the limiting membrane in inflammation and edema. A more efficient action of concurrently administered antibacterial drugs apparently can be obtained when the microchemical environment in the inflammatory wall is modified indirectly by streptokinase. It is presumed that such modification is effected through hydrolysis of fibrin, which is an important component of the barrier.

■ *Summary*

Reversal of inflammation and absorption of edema have been produced by the concomitant administration of the antibacterial drugs and of streptokinase intramuscularly in a group of patients. The reports of two patients of this group, who had teeth extracted, are presented in detail to indicate that this method of treatment might find a use among the dental profession for alleviation of postextraction inflammation and edema. Further investigation of the phenomenon is indicated.

■ Communication

The citizens of the ancient democracies met in person, in one place, where everyone could see and hear. The people of modern states meet only through confidence in the printed book and the printed journal whose voices speak clearly and coherently to all. Modern nations can meet only in so far as language is concerned as long as the instruments of communication give a clear and certain sound.—*Vincent Massey.*

Tranquilizing drugs in oral surgery

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Tranquilizing drugs are shown, by extensive research, to potentiate analgesics, hypnotics, narcotics and anesthetics.[1-4] They alleviate anxiety, excitement, apprehension and agitation; exhibit analgesic, antihistaminic, antiemetic and antinauseant effects, and produce sedation and tranquillity.[5-11] This study was developed to ascertain whether drugs possessing such characteristics can control postoperative sequelae and improve cooperativeness of the patient in oral surgery.

The dental literature contains preliminary studies of the application of chlorpromazine in oral surgery. Hoffman[12] reported that the use of chlorpromazine decreased the need for analgesics, eliminated the requirement for narcotics, and considerably reduced edema and trismus. He stated that no untoward reactions to chlorpromazine therapy occurred. Antinauseant, antiemetic and tranquilizing effects were observed when chlorpromazine was administered to oral surgery patients under general anesthesia.[13,14]

A large number of untoward effects, including fatalities, have been attributed to chlorpromazine.[15] Jaundice, agranulocytosis, orthostatic hypotension, tachycardia, drowsiness, depression, weakness, dermatitis, tremor, constipation, nausea and vomiting have been reported.[16-21] Individual tolerances for chlorpromazine vary, and toxic effects have followed initial 10 mg. oral dosages.[22] Attempts to correlate dosage or duration of treatment with the incidence of side reactions have been unsuccessful.[23]

Promazine (Sparine) and meprobamate (Equanil) were selected for this in-

Promazine (Sparine) and meprobamate (Equanil) used in this study were kindly supplied by the Wyeth Company, Philadelphia, Pa.

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†Formerly, chief, oral surgery section, base dental clinic.

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vestigation because a lower degree of toxicity has been reported for the ataractic drugs. Excellent discussions of their pharmacodynamics are available.[24-28]

■ *Procedure*

The double blind technic was utilized in this study. Neither the patient, the surgeon, nor the investigators knew which subjects had received promazine, meprobamate, or placebo until the entire study was completed. The subjects consisted of 150 male and female patients requiring the removal of an impacted mandibular third molar tooth. Subjects were taken at random from military personnel. Their ages ranged from 17 to 52 years with a mean age of 23 years. The oral surgical procedure was performed under local anesthesia by one of the investigators. Observations were made by the other two investigators on the morning of the first, second and third postoperative day.

Possible seasonal and operational influences were circumvented by subdividing the drug packages into 10 equivalent groups and then dispensing all the drug in one group before proceeding to the next. Patients were given 11 capsules and instructed to take one capsule on the night before and one on the morning of surgery. Postoperatively, patients took one capsule three times a day until all the capsules were expended. Each capsule contained either 25 mg. promazine, 400 mg. meprobamate, or lactose. The placebos resembled the tranquilizing drug capsules in size, shape and color. Postoperatively, all subjects received 30 grains of aspirin daily.

A four-point scale of distress was used to evaluate the postoperative sequelae of pain, swelling, and trismus. The patient's symptoms were scored as none, slight, moderate, or severe on the basis of clinical judgment. A functional appraisal of drug efficacy was then obtained by considering those patients whose symptoms were scored as none or slight as having received a satisfactory degree of protection. Those patients whose symptoms were scored as moderate or severe were considered as inadequately protected by the medication.

Observations relative to the incidence and type of side effects as well as cooperativeness of the patient during surgical procedures were recorded.

The statistical analysis of the results was based on the chi-square test.

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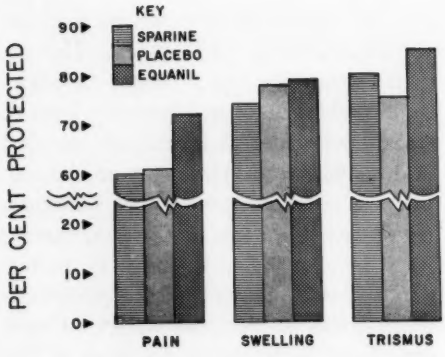

Fig. 1—Percentage of patients protected from postsurgical sequelae

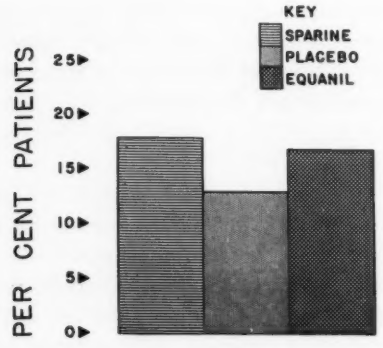

Fig. 2—Percentage of patients requiring narcotics postoperatively

■ *Findings and Discussion*

When the results of ataractic drug therapy were compared to those of the placebo, no significant effect on postoperative pain, swelling, or trismus was noted (Fig. 1).

The incidence and type of untoward reactions were recorded (see the table).

The postsurgical narcotic demand was not significantly affected by the tranquilizing drug therapy (Fig. 2).

The number of days lost from duty during postsurgical convalescence was significantly higher for patients on promazine ($P < 0.05$) and meprobamate ($P < 0.01$) therapy than for those taking the placebo (Fig. 3).

No differences in cooperativeness of the patients could be determined in any of the three experimental groups.

In view of the incidence and severity of the untoward reactions reported with chlorpromazine therapy, serious doubt has been cast on its role in controlling postoperative sequelae in oral surgery. The observations of this study reveal that promazine and meprobamate exerted a deleterious effect by prolonging the convalescent period and were ineffective in

Table

Incidence and type of side effects

Symptoms	Promazine	Placebo	Meprobamate
Drowsiness	4	6	7
Vertigo	5	1	3
Insomnia	4	2	1
Headache	3	2	1
Fatigue	1	2	2
Upper genitourinary tract	3	3	5
Lower genitourinary tract	1	2	0
Psychoneurotic	0	1	2

controlling postoperative sequelae. Even though the therapeutic efficacy of these two ataractic drugs in the control of postsurgical sequelae is questionable and their use is not without hazard, it is probable that a pharmacologic agent eventually will be developed which will be of value in these aspects of oral surgery. Extensive clinical investigation should be continued as newer drugs in this group become available.

■ *Summary*

A clinical evaluation of promazine and meprobamate in the control of postoperative sequelae in oral surgery was carried out on 150 military subjects. The following observations were made when the results of ataractic drug therapy were compared with those achieved with the placebo:

1. No significant effect was noted on the postoperative sequelae of pain, swelling, or trismus.
2. Tranquilizing drug therapy failed to influence the postsurgical narcotic demand.
3. The incidence of untoward reactions was not significantly increased.
4. The number of days lost during postsurgical convalescence was increased significantly for patients on promazine ($P < .05$) and meprobamate ($P < .01$) therapy.

On the basis of these observations, the use of promazine or meprobamate cannot be recommended for the control of postoperative sequelae in oral surgery.

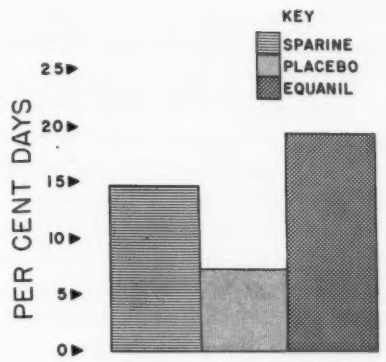

Fig. 3—Percentage of days during observation period in which patients were incapacitated

■ Inherited Beliefs

What we have inherited from our fathers and mothers is not all that "lives in us." There are all kinds of dead ideas and lifeless obsolete beliefs. They have no tangibility, but they haunt us all the same and we cannot get rid of them. Whenever we read a newspaper we seem to see ghosts gliding between the lines.—***Henrik Ibsen.***

Ostectomy through gonial angle of the mandible for correction of prognathism: preliminary report

■ *Charles W. Pankow, D.D.S., Buffalo, N. Y.*

Recently numerous reports have appeared on the correction of mandibular prognathism. A procedure for correction of this deformity in patients with extreme protrusion of the mandible and a comparatively obtuse gonial angle has been developed by the writer. The results of this procedure have been so gratifying that it seemed appropriate to report at this time.

V. P. Blair,[1,2] who pioneered in this country with the correction of mandibular prognathism, used the principle of horizontal osteotomy above the mandibular foramen and ostectomy in the body of the mandible.

Modifications of the procedures that Blair used have been developed by Kazanjian[3] who described a method of osteotomy above the mandibular foramen on a horizontal plane. He made his bone incisions on a bevel so as to have greater surface contact to enhance bony union. Dingman[4] refined the ostectomy procedure through the body by performing the surgery in two stages and preserving the mandibular nerve and blood vessels. Thoma,[5] and several others at about the same time, used an intraoral approach, and performed the operation in one stage with no external scarring.

Moose[6] developed a method of intraoral horizontal osteotomy in the ramus by an open operation, cutting from the medial side of the ramus. In this operation, a Cayo electric bone saw, rather than the Gigli saw and closed method, was used. Sloan suggested direct wiring around the sigmoid notch to prevent nonunion of the fragments.

More recently Schaeffer and Reiter in this country have advocated a comparatively easy method of cutting through the neck of the condyloid process by blind passage of a Gigli saw and repositioning of the mandible as originally reported by Kostecka. This method produces an excellent result if the jaws are held in position for 11 to 12 weeks. Open bite does not occur if the jaws are immobilized for this period of time, but may develop if they are held in occlusion for only eight weeks.

All of the procedures mentioned will produce good results if handled properly and if the mandible has a fairly normal

Assistant attending oral surgeon, Buffalo General Hospital; associate in oral surgery, University of Buffalo School of Dentistry.

1. Blair, V. P. Operations on jawbone and face. Surg., Gynec. & Obst. 4:67 Jan. 1957.

2 Blair, V. P. Instances of operative correction of malrelation of the jaws. Internat. J. Orthodont. 1:395 Aug. 1915.

3. Kazanjian, V. H. Treatment of mandibular prognathism with special reference to edentulous patients. Oral Surg., Oral Med. & Oral Path. 4:680 June 1951.

4. Dingman, R. O. Surgical correction of developmental deformities of the mandible. Plast. & Reconstr. Surg. 3:124 March 1948.

5. Thoma, K. H. Oral surgery, vol. 2. St. Louis, C. V. Mosby Co., 1948, p. 1444-1447.

6. Moose, S. M. Correction of abnormal mandibular protrusion by intraoral operation. J. Oral Surg. 3:304 Oct. 1945.

angle; that is, an angle of approximately 120 to 125 degrees.

When the gonial angle is extremely obtuse or produces the general outline of a boomerang in a lateral jaw roentgenogram, these methods are not completely satisfactory. In my experience, the prognathism is extreme in about one in six of the patients; the mandibles will have an obtuse angle that produces an open bite in some instances with a descending mandibular occlusal plane.

Caldwell[7] had devised a procedure of vertical osteotomy in the mandibular rami which has produced very good results in this type of deformity. Shira at the Walter Reed Hospital and Caldwell have each performed a number of these operations with excellent results. The principal disadvantage of this procedure is the complicated surgery and the length of operating time necessary.

■ *Preoperative Evaluation and Preparation*

All patients with mandibular prognathism should be subjected to careful preoperative study. This should include articulated study models, facial photographs and roentgenographic examination of the mandible and maxilla. The patients selected for the operative procedure described here also had preoperative cephalograms.

Stone casts are first obtained and are mounted on an articulator for study. The model of the maxillary teeth is then moved forward to the desired corrective position and spot grinding is done on the cusps of the teeth. In edentulous patients a modified Gunning acrylic splint is constructed after the desired corrected ridge relationship is determined on the articulator. The splint is made in two sections with a mandibular and maxillary biterim and is notched so that the two splints will occlude in ideal lateral and mesiodistal relationship.

Paper templates are then made from transparent tracings of the lateral cephalograms to determine the correct measurements of the wedge to be removed on each side. The cut out paper wedge is then duplicated in heavy foil to be sterilized and used at the operation. The guides thus made were determined by placing the result of various size cuts over the cephalometric roentgenograms and checking for reduction of the prognathism and formation of a normal gonial angle of the mandible. This cannot be made exactly as the cut will be made during the surgical procedure, but serves as a rather reliable guide. Ordinary lateral roentgenograms can serve the same purpose as cephalograms if the cephalograms are not available.

■ *Operative Procedure*

A submandibular approach is used through an incision beneath the angle of the mandible approximately two inches in length. The angle of the mandible is exposed, and if the facial vein and external maxillary artery are approached, they are ligated and cut. The parotid gland and masseter muscle are retracted in the flap as the periosteum at the inferior border of the mandible is elevated from the bone. It is not necessary in this operation to de-

7. Caldwell, J. B., and Letterman, G. S. Vertical osteotomy in mandibular rami for correction of prognathism. J. Oral Surg. 12:185 July 1954.

tach the internal pterygoid muscle or the sphenomandibular ligament; therefore, it is not neccessary to detach any of the tissue on the lingual side. This is because the oscillating Stryker bone saw used in cutting the wedges of bone will not cut soft tissue.

A line is marked for the proximal cut of the wedge with a sharp instrument. The mandible is sectioned along this line with a Stryker orthopedic bone saw (Fig. 1, left). A clean cut can be executed in about 60 seconds.

This method of sectioning bone has been found to be far more accurate and can be done faster than when burs or a Gigli saw are used. The cut made with a bone bur or Gigli saw is much wider and cannot be controlled as well; also, soft tissue will catch in burs and be traumatized. The cut made with a Stryker saw and a no. 1002-102WA blade is very thin, can be made straight or curved, and the soft tissue when contacted is merely moved in the very short stroke oscillations rather than being cut or traumatized. Warm sterile saline solutions can be played on the incision during the cutting procedure for reduction of heat.

At this point the wound is packed with moist sponges and the patient is turned to the opposite side where the procedure is duplicated. With the proximal cuts completed on both sides, the wounds are packed open and the surgical fields are covered with sterile towels.

The mouth is then entered and the mandible is moved posteriorly so that the teeth are brought into the position previously determined on the articulator. Vitallium splints with hooks which had been wired to the teeth along the gingival margins prior to surgery are utilized to immobilize the jaws in the new position by the application of intermaxillary elastics cut from latex tubing.

Fig. 1—Left: Stryker orthopedic saw with oscillating head and blade attached. Below left: Case 1. Wedge of bone cut and still in position. Below right: Wedge of bone removed with proximal edges wired into position

The surgeon and assistant then change gloves and gown, redrape one side and continue the surgical procedure. At this time the ramus is found medial to the mandibular fragment with overriding of the two fragments. The heavy foil pattern is now placed on the end of the distal mandibular fragment and the angle of the distal cut is judged. This cut is again made with the Stryker oscillating bone saw, the bone fragment is removed and the cut ends are wired together by direct wiring. The sharp angle thus formed is rounded off with rongheur forceps or Stryker saw. If necessary, one of the cut ends can be trimmed with the saw if the severed edges do not fit together with the desired contact. Kocher forceps are used to hold the two ends firmly while drill holes are made for direct wiring and doubled .020 stainless steel wire is threaded through the holes. The doubled wires are cut and each strand is twisted separately. In this manner the two fragments are held together forming a normal gonial angle. Closure is accomplished with no. 000 deep chromic sutures and the skin is closed with no. 00000 silk sutures. The same procedure is repeated on the opposite side and a pressure bandage is placed to reduce swelling.

■ *Case 1*

An 18 year old girl was referred to me on February 8, 1956, by a plastic surgeon to determine whether her mandibular prognathism could be corrected. She had been severely burned about the face and chest as a child and there had been considerable keloid formation. All of her teeth had been extracted two years previously.

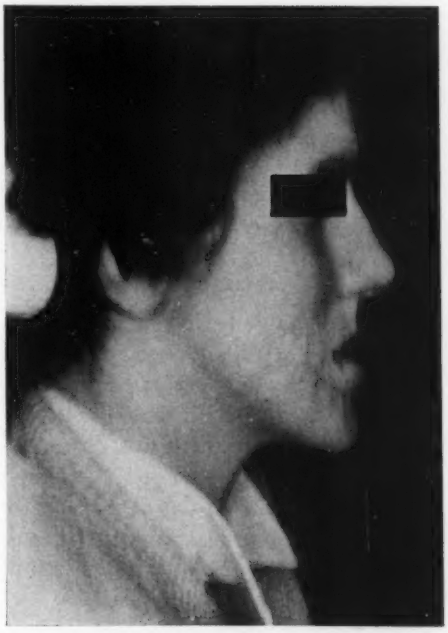

Fig. 2—Case. 1. Before ostectomy

Clinical examination revealed facial scarring and a mandibular prognathism (Fig. 2).

Laboratory examinations proved the patient to have a hemoglobin of 7.7 Gm. Otherwise they were negative. Cephalograms of the skull and facial bones substantiated the extreme prognathism and revealed an obtuse gonial angle. The protrusion of the mandible measured about 15 mm. (Fig. 3, left).

From examination of the study casts it was determined that good results could be obtained only by removing a segment of bone in the region of the angle thus forming a more acute gonial angle and also reducing the extreme prognathism at the same time. The casts were re-

positioned on a Hanau articulator, and as ideal as possible denture space and ridge relationship were established. A Gunning acrylic splint was constructed. The splint was made in two sections with biterims on each and right angle slots so that they could be fitted to the jaws in the original relationship.

TREATMENT AND COURSE—The patient was admitted to the Buffalo General Hospital on June 12, 1956. Routine physical examination was normal, and laboratory tests revealed the hemoglobin to be 7.7 Gm.; otherwise there was no contraindication to surgery. Fifteen hundred cubic centimeters of blood was given which raised the hemoglobin to 11.1, and the patient was readied for the operation on June 15. Anesthesia induced by thiopental sodium was administered intravenously and was supplemented by nitrous oxide and oxygen supplied by an indotracheal tube.

The two sections of the Gunning splint were wired into position on the alveolar ridges. The mandibular splint was secured by three circumferential loops and the maxillary splint was wired in place with three direct wires passing through the alveolar process in the right and left posterior region and through the nasal spine area. Bilateral ostectomies of predetermined degree were done at the gonial angles and the two sections of the Gunning splint were wired into the predetermined relationship, after which the cut ends of bone were wired together at each gonial angle (Fig. 3, center and right).

The postoperative course was uneventful, and the patient was able to take nourishment by mouth on the following day. She was discharged from the hospital on the sixth postoperative day. During the sixth week the wires holding the two sections of the Gunning splint together were removed and one week later the direct wires holding the splints in position were also removed.

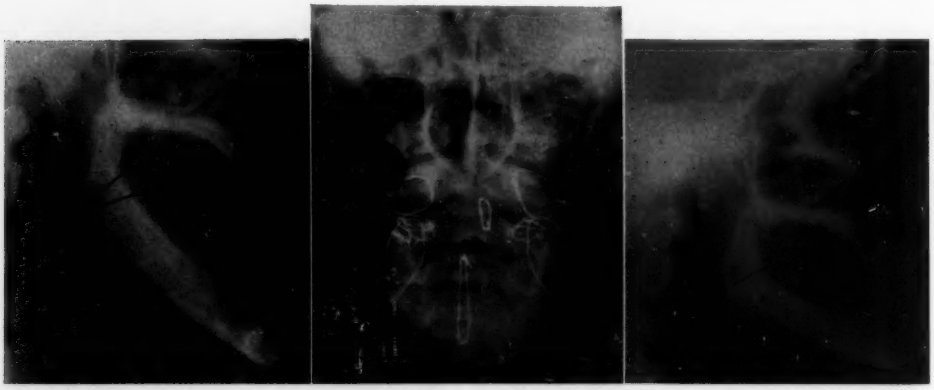

Fig. 3—Case 1. Left: Preoperative edentulous lines indicate approximate wedge cut from gonial angle of mandible. Center: Showing wires for Gunning splints and angles of mandible. Right: Postoperative view. Line shows approximate angle of bone union

One month later complete upper and lower dentures were inserted by a prosthodontist and she has had no complaints since that time. However, sensation in the chin did not return until about ten weeks after surgery (Fig. 4).

This young lady has been improved considerably in appearance and in the function of mastication. I hope to remove part of the elongated mandible at the symphysis in the near future to improve her appearance. Although correction of the prognathism has greatly benefited the patient both from the standpoint of function and esthetics, it is felt that she can be further improved by additional therapy. A member of the plastic surgery staff has been doing skin grafts on the patient's chest and is planning further grafts on her face to eliminate some of the keloid formation.

Fig. 4—Case 1. Ostectomy completed

■ *Case 2*

A student at the University of Buffalo Art School came to the department of diagnosis in the dental school to see if anything could be done to alleviate his extreme prognathism.

EXAMINATION—Physical examination revealed no abnormalities other than an obtuse gonial angle of the mandible and a severe Class III malocclusion.

Cephalograms showed extreme prognathism of the mandible and it was noted that the sella turcica surrounding the pituitary gland seemed enlarged. Laboratory examinations were negative or within normal limits. The patient was examined for evidence of endocrine dysfunction. There was no evidence of endocrine imbalance but it was felt that the operation should be deferred for a period to see if there would be any progressive growth of the mandible.

After a delay of nine months it was decided that the patient did not have acromegaly as the deformity had not progressed, and it was felt that an operation could be performed at this time without fear of future growth.

TREATMENT AND COURSE—Vitallium cast labial arch splints were constructed prior to the ostectomy. On December 12, 1956, the lower unerupted third molars were extracted since preoperative study showed that the ostectomy cuts through the angle of the mandible would involve these teeth. On December 18, the Vital-

lium labial cast splints were wired to the upper and lower arches, and on December 19, under general anesthesia, a bilateral ostectomy at the gonial angles of the mandible was performed and the cut ends wired together. Considerable hemorrhage developed from the transected mandibular arteries but was controlled by application of bone wax on the severed end of the canal.

The postoperative course was uncomplicated, and the patient was discharged from the hospital on the fifth morning. He was able to take fluids by mouth the first day.

The silk sutures were removed on the fourth day after the operation, and the intermaxillary elastics were replaced by .012 stainless steel wire ligatures. The wires were removed after six weeks and the patient could open his mouth easily although some trismus was present. (Fig. 5).

Within a few weeks he had gained strength in the muscles of mastication and the trismus disappeared. The patient had anesthesia of the mental region for eight weeks after which sensation began to return.

■ *Case* 3

A 27 year old mother was referred by one of the staff of the University of Buffalo on October 23, 1956. The patient had been experiencing some difficulty in eating because of moderate prognathism.

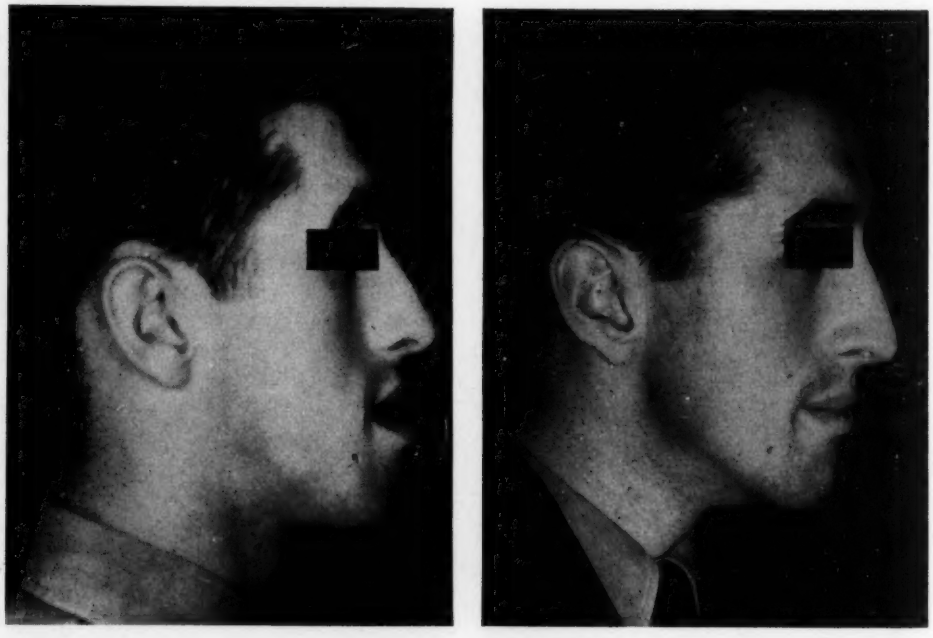

Fig. 5—Case 2. Left: Preoperative view. Right: Postoperative view

She also was conscious of her protrusive chin.

EXAMINATION—Physical examination revealed no abnormalities other than an obtuse gonial angle of the mandible and a moderate Class III malocclusion. Cephalograms showed the prognathic condition and the obtuse gonial angle of the mandible.

Laboratory examinations, including serological examination, blood chemistry tests, hematologic examination and chest roentgenograms were within normal limits other than a hemoglobin of 10.7 Gm. and a white blood cell count of 12,500 per cubic millimeter.

Examination of the study models revealed the necessity of perfoming an ostectomy at the gonial angles of the mandible by removal of a wedge of bone on each side. In this manner the occlusal plane could be changed by opening the bite on the posterior teeth. The remaining upper teeth were in poor condition and a complete denture was planned postoperatively. A splint-type upper partial denture was constructed which supplied the right upper posterior teeth that were missing and covered the occlusal surfaces of the posterior upper teeth on the left side.

TREATMENT AND COURSE—A Risdon type wire arch bar and individual Ivy loops were wired to all the upper and lower teeth on January 28, 1957. The following morning under general anesthesia, a bilateral ostectomy at the gonial angles of the mandible was performed. The upper splint type partial denture was then inserted and wired to the alveolar ridge of the maxilla on the right side. The mandible was forced distally to the predetermined position and intermaxillary elastic traction was applied drawing the mandible into the predetermined occlusion. During the operation, 500 cc. of blood and 1,000 cc. of 10 per cent glucose was administered. The low hemoglobin and considerable loss of blood during the operation prompted the transfusions.

The postoperative course was more complicated than was true with the other two patients. She had considerable swelling and pain and could not sleep well. Five days postoperatively the elastics were replaced with intermaxillary wires and the sutures were removed. She was discharged on the seventh postoperative day.

The patient was followed by routine observation for a two month period. The intermaxillary wires were removed after six weeks, and the patient could open her mouth with some restriction. Within several weeks there was no evidence of trismus and the patient wore the upper splint-type partial denture constantly (Fig. 6).

■ *Case 4*

A certified public accountant was referred by his physician on May 1, 1957. The patient was 45 years of age and had an extreme prognathism of the mandible.

EXAMINATION—Physical examination revealed no abnormalities other than an obtuse gonial angle of the mandible and a severe Class III malocclusion. The molars and the two lower second bicuspids had been removed several years previously. Because of the extreme prognathism and the few teeth remaining in the mouth, the patient had no occlusion. His lower

teeth were anterior to the upper teeth and as a result he could almost touch his nose with the lower lip.

Cephalograms showed the extreme prognathism of the mandible and an obtuse gonial angle (Fig. 7, left).

Results of the laboratory examinations, including serologic and hematologic examinations, blood chemistry tests and chest roentgenograms were within normal limits.

Examination of the study models revealed the necessity for performing an ostectomy at the gonial angles of the mandible by removal of a wedge of bone on each side. In this manner the occlusal plane could be changed by opening the bite on the posterior ridges. This could be done by construction of two splint-type partial dentures made on an articulator with the proper amount of opening predetermined. Paper templates were cut from the profile roentgenograms and wedges of bone were removed at the gonial angle until the desired angle of the ramus with the body of the mandible was attained.

TREATMENT AND COURSE—On May 27, the two upper second bicuspids were extracted because of the amount of extrusion, and the four lower incisors were also extracted because of the periodontal condition. A Risdon-type wire arch and individual Ivy loops were wired to the remaining upper and lower teeth. On the

Fig. 6—Case 3. Left: Preoperative view. Right: Postoperative view

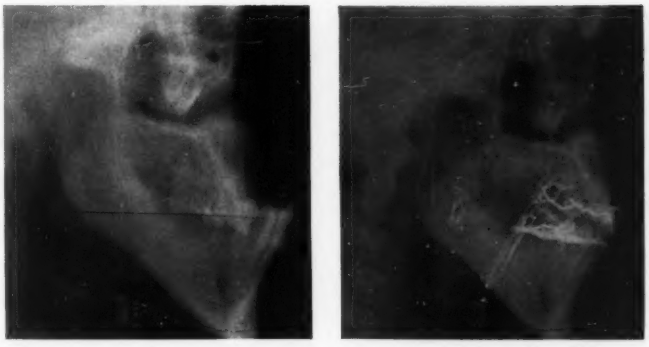

Fig. 7—Case 4. Left: Preoperative cephalogram. Right: Postoperative cephalogram

following morning, under thiopental sodium and nitrous oxide anesthesia, the two partial denture splints were wired to the maxillary and mandibular ridges. Circumferential wires were passed around the mandible, and wires passed through a drill hole in the maxilla on each side held them firmly in position. A bilateral ostectomy at the gonial angles of the mandible was then performed by cutting wedges out of each angle with a Stryker oscillating bone saw. The mandible was forced distally to the predetermined position and intermaxillary elastics were applied after some alteration of the occlusion by grinding. During and immediately after surgery, 1,000 cc. of blood was administered the patient.

The postoperative course was rather uneventful. He had considerable swelling but could swallow liquids at all times. Several days postoperatively the elastics were replaced with intermaxillary wires and the sutures were removed. The patient was discharged from the hospital on the seventh postoperative day. Postoperative view is shown in Figure 7, right.

During the following month the patient was followed routinely. The swelling subsided and the wires were removed at the end of the sixth week.

■ *Summary*

By an extraoral approach at the gonial angle of the mandible a wedge can be removed easily with a Stryker bone saw and the desired reduction of prognathism and change in the relation of the ramus to the body of the mandible can be obtained.

The oscillating Stryker bone saw has been found to cut more easily, more accurately and safely in this region than the Gigli saw or dental bur.

Interdental fixation in this type of procedure is maintained for six weeks which is considerably shorter than is required after most operations performed in the ramus, especially in the region of the condyle.

The body of the mandible is not shortened in this procedure as it is when an ostectomy is done in the body of the mandible. This reduces future prosthetic problems.

External scarring is evident in this type of procedure, but the scar is not more than 1½ inches in length, and if the incision is placed properly the scar is barely visible after several months.

Ostectomy of the mandible by removal of a wedge of bone in the gonial angle is advocated as a method of correction of extreme prognathism of the mandible when an obtuse gonial angle is present. It has proved to be more effective than any of the other methods that have been previously used by the author.—*902 Main Street.*

The economic royalist in medicine

■ *Jackson Livesay, M.D., Flint, Mich.*

On a cliff towering over the city of Edinburgh, Scotland, is the famous old Edinburgh castle which, for generations long since gone, was a fortification for the Scots during their wars with the English. It was fitting that the courtyard of this castle be chosen as the site of one of the world's most lavish war memorials.

As we entered this building and our eyes accommodated to the dim lighting, a sense of awe overcame us at the grandeur and splendor displayed. The walls are a gleaming marble and are inscribed liberally with gold. There are life-sized statues of soldiers in field battle dress. And there are many crypts off the main room, each for a regimental tribute with the gold inscription on the wall: "To the Glory of God and the Men of the 38th Regiment who gave their Lives for King and Country." And beneath would be a large leather bound parchment book with the names of the fallen heroes of that regiment. The next crypt would proclaim "To the Glory of God and the Men of the 42nd Regiment who gave their Lives for King and Country." And so it went until we were just ready to leave and near the exit door I noticed a little brass plate, not more than a foot square, with simple black letters printed on it. It was even placed so that one had to stoop to read it. It said, "To the Glory of God and the Men of the Royal Medical Corps who gave their lives in the service of their fellow men."

It was after we stepped outside, I think, that we began to appreciate how different that last little plaque had been. It was so plain and simple in contrast to the ornateness of the other tributes, as if a nation had purposely felt a quiet, humble

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gratitude for their medical corps; in fact, had made the distinction quite emphatic. For it had not said, "To the Glory of God and the Men who gave their Lives for King and Country," but rather, "To the doctors who gave their lives in the service of their fellow men."

I have been asked to discuss the economic royalist in medicine. I think I have worried more over the organization of this presentation than any I have ever given. For in reality, we are to discuss some of the basic principles of medical practice in relation to money. It is extremely difficult to keep one's thoughts totally objective on these matters and so easy to dwell on ideals and philosophical points that defy any practical outline for a talk. I shall try my best to keep this from sounding like a sermon; but if you should consider it such, I shall not be too apologetic.

I purposely began with my experience in Edinburgh to point up, in an emotional way, the ideal side of a life in medicine lived in the service of your fellow men. I hope that by the end of this discussion I have made this the attractive goal of your professional life that lies just ahead of you. But at the same time, I am not blind to the realities of our modern world and hope to show how these problems must be integrated into the ideal pattern of a doctor's life.

Suppose we get down to the case in point and define the economic royalist. In short, he is the doctor who tries to impress people with the acquisition of too much of the world's costliest goods. He has the biggest house in town, he has the biggest and best automobile, he sports a luxury boat, he dresses in the finest clothes and often overdresses. He will be the first with a color television, he gives lavish parties, his chief topic of conversation will be his investments and his newest gadget that he has bought. Mostly he is talking about money or taxes or what money will buy. He may or may not be a good doctor as far as scientific medicine goes.

What are the effects of this man? The public will not take kindly to this doctor because they instinctively say that because of his appearance of affluence, he charges too much and is making too much money. What about this influence on medicine in general? The public says therefore all doctors make too much money. It is surprising how one ostentatious doctor can overshadow the good works of dozens of his more moderate colleagues. That is his danger to medicine in general.

Now let's talk about the individual and not medicine in general. How does a man get this way? Let me suggest that there are two ways. First, we must recognize the personality deficit of a few individuals who must compensate by displaying their worldly goods to prove their success. I noticed an ad for an automobile recently, the first line of which read, "Some men must prove their success, others simply live theirs." This puts the matter quite simply, I think. It would be difficult to analyze the background that created this need in a person, but I suppose any remedy would have to start here. The usual pattern of this man is that he is a merchant. The Bible says, "Where a man's treasure is, there is his heart also." So it goes with this doctor. He is unscrupulous in his charges, he often takes cases beyond his ability, he uses every legal way to make money out of medicine

such as unneeded surgery, unnecessary shots once a week, etc. He is known to his colleagues early in the game, but unfortunately, the public is not so discriminating. But the peculiar thing about him is that after he has gained the whole world in material things and lost his professional soul, he suddenly switches and his soul becomes more important, for now the ultimate in success is respectability and he will begin in a pitiful way to court the respect of his colleagues. I have seen it happen several times, and I might add that he is seldom successful in this and passes on an unhappy, frustrated and still unsuccessful doctor, *even in his own eyes.*

The second way a doctor gets this way is perhaps the more important to a group of students about to embark on a career, and is more insidious and may happen before he is aware of it. Aristotle said, "In the case of our habits we are only masters of the beginning, their growth by gradual stages being imperceptible like the growth of disease."

Let's take Dr. Doe who is a typical new doctor in our town. He is married like so many of the young ones these days, and has two children. Mamma has seen daddy through some pretty rough years when there was hardly money enough to buy food, let alone any of the luxuries common to the better social class to which their minds and social background entitle them. For years they have dreamed of the day when things would be different and finally that day seems to have arrived. Mamma wants a really important house right away and daddy thinks she deserves it. She must dress in a way fitting her new station in life and comparable to the other doctors' wives (even though their husbands have been in practice for many years). Of course the doctor should have a new car so that he will look prosperous to his patients and pretty soon mamma has made friends with a few gals who have their own cars and so a second car is added to the family. Incidentally, there must be money to equip a new office, which is no small item. Finally, when all this is added up, Dr. Doe is overwhelmed by the shock of financial burdens and he suddenly sees $50 in Johnny's throat rather than a pair of pretty good tonsils, and Mrs. Jones's neurosis turns into a $5 a week shot. And although he had never done any real surgery, Mr. Black's torn hand could be fixed in the office rather than refer him to a competent surgeon. The habit of the first step is perhaps not easy, because Dr. Doe once thought of medicine as a great calling with pretty fixed habits and ideals, but as Aristotle said, we control only the beginning of our habits, their growth after that is imperceptible. And on just such a weak beginning under stress is born the economic royalist of medicine.

If I could leave you with just one word of advice it would be to plan to start your life in practice on a scale of living commensurate with your early income. Build first a sound layer of good will and service and you will not be troubled with the economic side of medicine nor with your scale of living from then on. If mamma is the helpmate you and she think she is, she will be content to let time take care of material things in its own way and be happy in the sharing of a great service to a community.

I know of no smooth way to make a transition to my next line of thought, so

in the parlance of sailboating, "prepare to come about" and we will take a new tack. We will start with a fishing story.

Several years ago a bunch of us went to the Thousand Islands in the St. Lawrence river for some musky fishing. We got hold of an old Nova Scotia schooner and a ferry boat operator to run it for us. Because there were too many fishermen to permit us all to troll at once, we towed along a dinghy with an outboard. So when we reached the fishing grounds several miles down river, two fellows we'll call Jim and Joe took off by themselves. Joe had brought his young Labrador retriever on the trip to teach him tricks in the water, so we must add him to the list of occupants of the boat.

It was a very hot, still day in September—but not calm enough for the dog because he promptly became seasick and vomited all over the little boat. The heat of the sun soon made the stench quite potent. The river there is perhaps eleven miles wide and because of the distance it was not prudent to return to the mother ship. So they had to endure the odor and keep fishing.

They had made a bet. It was to be one dollar for the first fish and two dollars for the largest fish caught. But fishing was not good that day, and finally after three hours of sun and heat, stench and frustration Joe caught a perch minnow hardly larger than the flat fish lure he was using. As he tossed the illegal fish back he said, "Okay, we'll go in now, pay me three dollars." Thereupon, a heated argument ensued over the technicality of counting an illegal fish at all and the deadline for quitting.

By the time they had returned to the schooner, a fine friendship was fraying at the edges, and Joe was so upset he refused to come aboard the schooner but chose to be towed home in the dinghy with his sick dog for company.

The sequel to this story took place eight years later when Jim and Joe finally went fishing together again. They repeated their bet for one dollar for the first fish and two dollars for the largest. But this time they had learned their lesson, though, and agreed on *all* the rules in advance. It was any fish this time and a time limit of two hours.

I don't have to remind you that disagreement over money can break up friendships. The same thing is true of doctor and patient. It is, therefore, very wise to discuss fees in advance, especially for extensive procedures. As our fishermen finally learned, the rules, too, should be talked over in advance.

But doctors as a rule don't do this because there has been preached a doctrine of humanitarianism in medicine in which money is just a nasty word and remuneration an evil thought. But when the patient sees his bill he knows otherwise and classifies his humanitarian a hypocrite. He preaches "holier than thou" humanity but acts like a businessman.

I think I can explain why most doctors practice this way.

The author of the first treatise on medical ethics in 1860 or thereabouts plainly stated that "fee for service" was a part of medical practice. He did not ignore the money side of medicine. But by the turn of the century, this country had so many diploma mills in operation that profiteers in medicine were threatening to outnumber the conscientious men

who were doing a good job. So about 1912-1914 the AMA wrote a code of ethics deploring the profit motive in medicine and setting forth an ideological code painting medicine as a completely selfless calling.

In the 1920's the Rockefeller Foundation cleaned house on our medical schools; the diploma mills vanished and the legitimate schools took over. This country slowly but surely became the world leader in medical education. But the doctrine of humanitarianism from this background has persisted until just recently Dr. Elmer Hess, when president of the AMA, allowed himself to be quoted in the *Saturday Evening Post* as saying, "We spend too much time talking about what great humanitarians we are. I have made as much as $100,000 a year in medicine and I am not ashamed of it." This might be classed as a history-making statement because it is such a sharp departure from the usual public relations remarks of the AMA.

I feel it is high time we began talking more about the business side of medicine. I am not ashamed, either, to admit that I make a very good living in the practice of medicine. Why should I be? I think I work hard, charge just an average fee, I have a large investment in myself and in my equipment. On pure business principles I deserve a just return on my investment, as well as my labor. But I do not think nor act like a merchant selling a product. When my customer can't pay, he gets the service anyway. But when he can, I have to be a doctor and businessman as well. I have four kids to clothe, feed and educate; I have office help to pay and rent, and finally, my own security to consider when the day comes that I can't keep up the pace anymore.

Now if my remarks have left you wondering about the paradox between my opening theme and my recent remarks, let me try to explain:

Last fall I spent my time in a deer blind reading *Marjorie Morningstar* by Herman Wouk. The central male character is an irresponsible rake of a playwright. Marjorie can't see him as a good financial risk for matrimony so she talks him into the security of an office job and he makes some good money. One day . . . he says, "You know, Marjorie, I like having money. Sure it's fun. Of course I like what it will buy. I would like to wear gold cuff links, dine in these fine places and buy you things from the Fifth Avenue shops. But I could stand it only—and only—if both my wife and I agreed that it was nothing but a comic mask to be put on or taken off as we wish. That having money is not the real thing at all." And then he tells her he has found out what the real thing is—"the Hit."

You will remember he is a playwright and he has found out that creating a hit play is the fiber on which his being is suspended. It is not the money he can make from the play, but as he puts it, "the externalizing of one's ego"—being able to create something tangible and external that you can see or sense. This is the real thing in life we seek—and such a hit can nourish the personality for a long period of time.

With the doctor it is the deep satisfaction of knowing he has done a real service. It is not found alone in the glory of spectacular surgery but may be just as real in a tiny office without the glare of

spotlights and without any stirring background music.

Let's say for example, that it is late in the afternoon of a busy day in your office. You are rushing, perhaps, because you and your wife have a little anniversary celebration planned for the dinner hour. There is one more patient and if you wish, you can rush her through in a hurry. But your conscientious nature and good habits prevail and you do a real examination, including a pelvic—and there it is—small, but it's there—an early and curable carcinoma of the cervix.

She is the mother of four children who depend on her. She doesn't know anything about medicine and so will never be able to appreciate how much you have done for her. But you know—you know that her chance for cure rests on your early discovery of her disease. And you know in your own mind that in this simple, routine examination you have created a hit show equal to any spectacular on Broadway and inside you feel good.

For years you see this patient around your town and feel good that you had a big part in her still being there. And the day comes that her son, Johnny, is awarded a scholarship to the university as an outstanding student, and you again feel good living this event with this family for even this day depended upon Johnny having a normal home life and a mother to help.

So you forget the patient dying of stomach cancer and the cardiac invalid you can't do anything about, and you feel good that you are a doctor doing something worthwhile in your community. And certainly you can't remember what you charged this woman nor if she paid her bill. The "Hit" is the real thing.

So now we are ready to put our story together. Medicine is without question a great humanity. It is of necessity also a business for profit. The big difference in doctors depends entirely upon which he emphasizes. "Where your treasure is, there will your heart be also," the Bible says. It also says that God knows humans have need of food and raiment and material things, but says "Seek ye first the Kingdom of God and all these things shall be added unto you." If we could paraphrase this slightly we would say, "Seek ye first the service of your fellow men and all these other things shall be added unto you." But the important word is "first." That's what makes the difference.

In conclusion, may I suggest that you ask yourself what you really want out of a life in medicine. Are you the one who wants a life-sized statue set up in a marble palace all resplendent in gold art work? If so, you are to be the economic royalist and merchant of medicine.

Or, are you content with humility in material things? Are you willing, at the end of the road, to settle for a monument of gratitude in the hearts of a community and a little brass plaque not more than a foot square?

Essentiality of experimental controls in research

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A questionnaire was mailed by the Scientific Manuscripts Committee of the American Association of Dental Editors to a representative group of consultants whose opinions were requested on the desirability of formulating and adopting a resolution or principle directed at emphasizing the essentiality of experimental controls in research.

The report had its origin in a disturbing review of the literature by Ross[1] who reported that of 100 unselected consecutive papers appearing in highly respected medical journals, only 27 per cent of the studies reported were well controlled, whereas 45 per cent of the studies were uncontrolled and 18 per cent had inadequate controls; in 10 per cent no controls were possible.

The Ross report also emphasized that the experimental control ". . . is not just a tool of highly specialized teachers or research men" but that men at the grass roots of medical practice and theory ". . . must learn to evaluate various treatments and procedures."

The Ross study demonstrated that, wherever the responsibility lies, the job of rejecting manuscripts for publication which do not include suitable experimental controls is not being carried out thoroughly enough. Thus, the present study was undertaken: (1) to develop the thesis of the essentiality of experimental controls in research; (2) to examine the legitimate possible exceptions from this general principle; (3) to delineate at least some of the reasonably acceptable forms of control procedures; (4) to correlate this material into a message encouraging the proper use of controls in research and discouraging the lack of or inadequate use of controls; (5) to direct this codification of principle to authors, journal readers, consultants, researchers, and editors; and (6) to provide a backbone of opinion which would serve subsequently to support editors and others accorded the unenviable task of approving the submission of manuscripts for publication or for accepting or rejecting these for publication. To this end a resolution (appearing at the conclusion of this report) was drafted and submitted for consideration by a consultant panel and

This report was prepared by the Scientific Manuscripts Committee of the American Association of Dental Editors whose members are the authors of this report. The resolution which resulted from the survey described herein has been approved by the Board of Directors and the membership of the American Association of Dental Editors. This paper was adapted from a presentation read before the American Association of Dental Editors, Miami Beach, Fla., November 2, 1957.

1. Ross, O. B., Jr. Use of controls in medical research. J.A.M.A. 145:72 Jan. 13, 1951.

ultimately for consideration by the American Association of Dental Editors.

■ *Background Information*

The present study was intended to parallel several studies that are striking examples of the usefulness of the construction of guideposts for research. Reports on these studies have appeared in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.[2-5] This program was designed to add one more facet to a developing awareness of the need for the study of research per se, a responsibility of researchers, research administrators, and editors themselves.

That the subject of the essentiality of controls is far from the simple matter which it may seem on the surface was obvious from the replies of several of the respondents who initially expressed reservations or objections (subsequently withdrawn) to some of the ideas embodied in this program.

Over-all, however, the replies were keynoted by the response of one member of the Council on Dental Therapeutics of the American Dental Association who noted that in reviewing numerous articles pertaining to the therapeutic effectiveness of different medicinal agents, only infrequently were the studies adequately controlled or was the "double blindfold technic," used.

The following additional comments of our consultants and committee men seem most apropos and revealing:

1. There is no statistical manipulation which can compensate for an inadequate or non-comparable control.

2. A deficiency in control cannot be remedied by the inclusion of larger numbers of subjects.

3. Uncontrolled observations are often valuable, but with suitable controls they are usually of much more scientific value.

4. Various control procedures are usually known to investigators. Some apparently do not wish to employ them because of the additional time and effort required and perhaps in an occasional instance because their employment may affect their "results."

5. It is difficult to conceive that research, worthy of the name, could even be classified as research if some form of control were not used . . .

6. Everyone will agree that he believes . . . all original scientific research which can be suitably controlled should be controlled. The world being what it is, I imagine the difficulty will be for them to live up to their beliefs and to persuade others to respect them.

7. There will be wide differences of opinion as to just what is a control and greater differences of opinion on just what is a suitable or an adequate control.

8. A prime purpose then should be to stimulate referees in various fields to formulate statements as to appropriate controls—which provisional codifications might be of value to research as are the Marquis of Queensbury rules to boxing.

9. Undue claims must not be condoned in the absence of controls.

With reference to the remarks quoted in number 7, Albritton[6] has listed six unities of measurement, all of prime importance to the consideration of controls: time, place, material, procedure, personnel, and mental attitude.

2. Russell, A. L. Clinical testing of dental caries preventives: a summary. J.A.D.A. 54:275 Feb. 1957.

3. American Dental Association, Council on Dental Therapeutics, Council on Dental Research, and Council on Dental Health. Clinical testing of dental caries preventives. Chicago, American Dental Association, 1955.

4. American Dental Association, Council on Dental Research. Recommended stipulations for academic-industrial research contracts. J.A.D.A. 54:121 Jan. 1957.

5. Pearlman, S. Essential requirements for effective research in dental therapeutics. J.A.D.A. 48:49 Jan. 1954.

6. Albritton, E. C. Six unities in medical research. J.A.M.A. 161:328 May 26, 1956.

■ *Exceptions and Exemptions*

The following exceptions and exemptions were noted in the replies:

1. Case reports are of interest and contribute to our knowledge—controls are usually impossible. Statements of theories or hypotheses not intended to be substantiated in the paper by experimental evidence are not research. Such articles may be very provocative and serve a real purpose. These and review articles should be judged on their individual merit.

2. In all areas of research, unusual circumstances may perhaps be present in which rigid requirements for controls should be waived.

3. The exceptions should be for relatively extraordinary reasons.

4. Some experiments on animals may be expected to include large numbers of controls while it is obvious that similar relative numbers could not be required for many of the experiments involving humans.

5. There are differences in the nature of suitable controls applicable to studies of various types in various fields.

Thus a liberal and flexible interpretation should prevail. The importance of controls lies in the character and interpretation of conclusions drawn from the data. Statements of theories or hypotheses not intended to be substantiated in a paper by experimental evidence perhaps do not merit publication at all.

■ *Acceptance or Rejection of Uncontrolled Research*

To the question, "Should the absence of the suitable use of controls be sufficient cause by itself for rejection?," the replies were nearly unanimous that rejection usually should be the case, indicating a predisposition to follow the basic principle to its terminus, without, however, a desire for inflexibility. Implicit in these statements is the idea that such exceptions should remain exceptions rather than the rule. Great latitude should be allowed as to the "suitability" of controls, whereas the absence of controls should meet with more stern consideration. Where suitable, untreated controls or placebo-treated controls were suggested as essential requirements.

■ *Responsibilities of Editor, Referee, and Researcher*

The right of the editor to apply suitable "standards" to papers is an inalienable one. However, a concerted effort should be directed at the appointment of more editors who are qualified by experience to pass upon such criteria of acceptability as "controls."

One consultant was fearful lest editors "untrained in the field of research attempt to apply rigid standards for the acceptance of research papers." Nevertheless, the editor has authority which must be exercised. This survey was made in an attempt to propose a principle under which this authority can be exercised learnedly and fairly by those appointed to the responsible job of editor.

It could also be concluded that the editor, the institution from which a paper emanates, the institution's research committee, the journal's publication committee, the editor's referees and consultants and researchers themselves all share the responsibility for evaluating papers and rejecting unsuitable material. "In the final analysis, the journal's publication committee or editor should probably assume the authority in consultation with advisers."

The editor enters the picture rather late.

If he can perceive that controls were needed but were not used; if he will reject reports that exemplify these deficiencies and if he has the fortitude to state the grounds for his rejection, he will force additional researchers to more conclusive methods.

■ *The Resolution*

Most respondents concluded that they probably would be willing to endorse for publication a resolution to the effect that "as a matter of principle and under not unusual circumstances, all manuscripts or research projects which were suitable for the application of controls and which have not been so treated should be rejected for publication."

However, in recognition of some pitfalls which were suggested as possibly resulting from editors accepting such a resolution overenthusiastically, and acknowledging the near-impossibility of defining a universally suitable control or all suitable exceptions, the revised resolution seemed warranted and desirable and has been approved by our consultant panel, the Scientific Manuscripts Committee, the Board of Directors of and the membership of the American Association of Dental Editors as follows:

In research investigations, the design of the study should include adequate experimental controls. Acceptance for publication of a report of an investigation performed without controls when controls were possible should, if justified, be considered an exception to this principle rather than a sound general practice. The ultimate responsibility (in terms of publication) for allowing such an exception should rest with the editor.—*630 West 168 Street.*

■ Science and Humanity

Hippocrates pointed out a long time ago that "Wherever the art of healing is loved, there also is love of humanity." So today, despite all the scientific advances and the complexities of modern medicine, the dedicated physician still realizes the age-old truth that his calling is both science and art. Members of the healing profession know, as it has always been known, that scientific knowledge is not enough, that sympathy and understanding are equally important.

Physicians and dentists in touch with the stream of modern thought know that they must be both scientists and humanitarians. They know that all the scientific training in the world cannot dry up the milk of human kindness—if it was there to begin with.—*David B. Allmann, Guidance, Human and Divine, 1958.*

VOLUME 16 • JULY 1958 • NUMBER 4 CASE REPORTS

Untoward reaction to lidocaine: *report of case*

■ *Frederick T. Wigand, D.D.S., M.S., Jacksonville, Fla.*

Lidocaine has been the subject of numerous reports in the literature since it was introduced by Löfgren[1] and Lundquist[2] in 1946. The low toxicity and freedom from side effects of this anesthetic agent are frequently cited by investigators. Bremer and associates,[3] reporting on 142 oral procedures, had but six general reactions from lidocaine and these were all mild. Dubin and Foner,[4] after using the drug for 3,000 anesthesias, reported "no sensitivities or untoward reactions in all 3,000 injections given." Cox and Abramson[5] observed only four mild reactions in 300 instances in which this type of anesthetic was used. Wendt,[6] after a study of a similar number of patients in whom this anesthetic was used, reported that it produced no noteworthy side effects or postoperative reactions.

The present report concerns a patient in whom severe complications developed after the administrations of lidocaine for local anesthesia.

REPORT OF CASE—On December 2, 1953, a 19 year old white boy, a seaman recruit, U. S. Navy, was referred to the oral surgery service of the Bainbridge Naval Training Center for the extraction of his remaining teeth. Prior to this, a general physical examination had shown the patient to be in good health except for his teeth. Rampant dental caries and periodontal disease were the defects noted; removal of all remaining teeth and the construction of dentures was indicated.

OPERATION—Local anesthesia was induced in the mandible by left and right mandibular block injections, plus infiltration anesthesia for the buccinator nerves. The maxillary teeth were anesthetized by infiltration. Lidocaine 2 per cent with epinephrine 1:50,000 was the anesthetic used. Approximately 12 cc. of the solution was injected. This gave a total dosage of 0.24 Gm. of lidocaine. The maximum dose for this anesthetic is, according to the manufacturer,[7] 0.5 Gm. Pentobarbital sodium 1.5 grains (0.1 Gm.) was administered a half hour prior to the induction of anesthesia. Fifteen maxillary teeth and 11 mandibular teeth were removed and an alveoloplasty was performed on the maxilla and mandible. A technic preferred by the writer[8] was used. There were no untoward reactions nor was there excessive loss of blood

The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

Captain, Dental Corps, U.S. Navy, U.S. Naval Hospital.

1. Löfgren, N. Studium über Lokalanästhetica. Arkov für Kemi, Mineralogi och Geologi, 22:A1, 1946.

2. Löfgren, N., and Lundquist, B. Studies on local anesthetics. II. Svensk Kem. Tskr. 58:206 Aug. 1946.

3. Bremer, G., and others. Xylocaine, a new local anesthetic. Brit.D.J. 85:278 Dec. 17, 1948.

4. Dubin, N., and Foner, L. Xylocaine. Oral Surg., Oral Med. & Oral Path. 5:403 April 1952.

5. Cox, P. A., and Abramson, D. J. Lidocaine. U.S. Armed Forces M.J. 3:1561 Oct. 1952.

6. Wendt, D. Lidocaine in dentistry. U.S. Armed Forces M.J. 3:1645 Nov. 1952.

7. Astra Pharmaceutical Products, Inc., Worcester, Mass.

8. Wigand, F. T. Technique for alveolectomy. U.S. Nav. M. Bull. 48:847 Nov.-Dec. 1948.

during the operation. The patient was in good condition when he left the operating room.

POSTOPERATIVE COURSE—The patient was admitted to the oral surgery ward and given 300,000 units of procaine penicillin intramuscularly. An ice bag was applied to the face, to be left on a half hour each hour while the patient was awake. Codeine sulfate 0.5 grain (0.3 Gm.) was prescribed for pain every four hours, if required. One hour after the operation, the patient received 0.5 grain (0.3 Gm.) of codeine sulfate. He received no further medication.

The following morning, the patient's temperature was normal. There was moderate edema of the upper lip. He was afebrile and in no discomfort. He was discharged with instructions to return the following day for postoperative observation.

Three and a half hours after returning to his barracks, he became weak and unconscious. Several sailors who were in his company at the time reported that he "turned blue." He was taken immediately to the Bainbridge Naval Hospital.

On arrival at the hospital, the patient was acutely ill, deeply cyanotic and unresponsive. His entire body was cold and clammy. His conjunctiva was noticeably injected and suffused with blood. There were prominent pulsations of both carotid glands; his temperature was 101°F.; pulse rate 110; blood pressure 120/60. The reports from the emergency laboratory examinations revealed complete blood count and urine normal; the oxygen content of blood, 8 volumes per cent, and the venous blood very dark with failure to become pink when oxygen was bubbled through it.

TREATMENT—One hundred per cent oxygen was given by mask. Within a short time, the patient began to respond. His speech became coherent and he appeared oriented. Despite oxygen therapy, however, his cyanosis remained unchanged. Since his venous blood failed to take up oxygen, it was reasoned that the patient was suffering from an abnormal pigment in his blood. The most likely malady that was considered was methemoglobinemia. On the basis of this, the patient was given 70 mg. of methylene blue intravenously.

Within 90 minutes, the patient's color had returned to normal. Oxygen therapy was discontinued after having been administered for 4 hours and .40 minutes, first by mask and then by nasal catheter. The patient had an uneventful night. The following morning, December 3, the temperature was 98°F.; pulse rate 72; blood pressure 120/60. The oxygen content of the blood was 18 volumes per cent. The remainder of the postoperative course was uneventful and the eighth day after admission to the hospital, the patient was returned to duty.

DISCUSSION—An instance has been presented in which a patient suffered considerable cyanosis after administration of a local anesthetic with lidocaine. The intense cyanosis was diagnosed as methemoglobinemia. According to Cecil,[9] the cause of this rare condition is unknown, but the existence of methemoglobinemia at times has been attributed to the absorption of toxic products from the intestinal tract in association with the use of aniline derivatives, acetanilid and the like. Since lidocaine is an anilide, the patient described herein may have suffered from this condition. An interesting feature was that the symptoms of methemoglobinemia did not appear until 24 hours after the anesthetic was injected.

The day after surgery, and on discharge from the oral surgery service, the patient was given four 5 grain aspirin tablets with instructions to take two tablets every four hours should postoperative pain occur. Interrogation of the patient elicited the information that he had not taken the aspirin tablets, nor had he taken any other medication or proprietary remedies after discharge from the oral surgery department. Prior to the onset of his illness, the patient had consumed milk, cereal, orange juice, soup and ice cream.

Prior to the operation, the only medication received was pentobarbital sodium 1.5

9. Cecil, R. L.; McDermott, W., and Wolff, H. G., editors. Textbook of medicine, ed. 7. Philadelphia, W. B. Saunders Co., 1947, p. 587.

grains (0.1 Gm.) and 12 cc. of lidocaine. After surgery, medication received by the patient was limited to procaine penicillin 300,000 units and codeine sulfate 0.5 grain (0.3 Gm.). Inasmuch as the diagnosis of methemoglobinemia was established, and as lidocaine was the only anilide derivative ingested by the patient, it is reasonable to assume that this is a rare instance of a patient being hypersensitive to the anilide in lidocaine.

COMMENT—Although lidocaine in most instances has proved to be an anesthetic agent of low toxicity, the case reported herein illustrates that it can, on occasion, as can other local anesthetics, produce severe toxic reactions.

A method of reduction for impacted and partially malunited fractures of the jaws: *report of case*

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Much has been written on the importance of occlusion in the treatment of fractures of jaws and the necessity for re-establishing perfect postoperative occlusion and function. This is a standard which should be striven for but which is not as important with the present knowledge of equilibration as is the determination of the patient's normal preoperative occlusion. This knowledge enables an operator to ascertain when the fractured fragments of the jaw are in correct apposition and have been properly reduced. After a traumatic episode, it is often extremely difficult to evaluate correctly a patient's normal occlusion because of (1) displacement of fractured parts, (2) avulsed or fractured teeth, and (3) failure to determine accurately the patient's original occlusion.

In instances where clinical and roentgenographic examination fails to indicate definitely the patient's occlusion, study models should be made. These study models are a definite aid in the determination of normal occlusion, determination of which jaw should be used as a base of operation when multiple fractures of one or both jaws have been sustained, and in the construction of arch bars and appliances.

Thoma[1] classifies horizontal fractures of the maxilla as (1) through maxillary sinus and nose, and (2) through orbit, malar and nasal bones.

The case herein reported falls under the latter category. It was complicated by displacement and impaction of the maxilla and a fracture of the symphyses of the mandible.

Practically all horizontal fractures of the

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1. Thoma, Kurt H. Fractures of maxilla. Am. J. Orthodont. & Oral Surg. 28:275 May 1942.

maxilla in patients with reasonably normal dentitions can be treated adequately simply by (1) determining the patient's original occlusion, (2) re-establishing this occlusion, and (3) fixing fractures by intermaxillary stabilization.

If the teeth are fixed securely in proper occlusion for a sufficient period of time, there is seldom a need for devising a means of fixing the maxilla to the skull. In 1,021 instances treated in this manner alone, we have observed no evidence of nonunion, no apparent lengthening of the face, and no obliteration of the freeway space.

REPORT OF CASE—A patient was transferred from another air force base to the oral surgery service of the Lackland Air Force Base Hospital on October 23, 1956, for diagnosis and treatment of multiple facial and mandibular fractures. The patient had been involved in an automobile accident on October 22. Prior to his transfer, a dislocated left elbow had been reduced and splinted and multiple small lacerations about the face had been sutured.

EXAMINATION—The examination on admission revealed a moderately well developed, well nourished, 18 year old white man in no acute distress. There was moderate swelling of the right side of the face with subconjunctival ecchymosis of the right eye. There were multiple abrasions and lacerations about the face which had been treated previously. The patient's pupils were round, regular, equal, and reactive to light. There was no diplopia or blurring of vision. There was no evidence of cerebrospinal rhinorrhea. The remainder of the general physical examination was within normal limits.

Oral examination revealed gross malocclusion. The patient apparently had struck his face on the dashboard of the car, the maximum force of the blow occurring just slightly left of center. The maxilla was impacted upward and to the right (Fig. 1, above). Manipulation revealed a fracture at the symphysis of the mandible.

Roentgenograms revealed (1) a wide separation at the nasofrontal suture, (2) a bilateral fracture of the zygomaticofrontal suture, with very slight displacement, (3) bilateral fractures of the infraorbital ridges with no apparent displacement, and (4) a fracture of the symphysis of the mandible, extending inferiorly between the left cuspid and lateral incisor (Fig. 1, below).

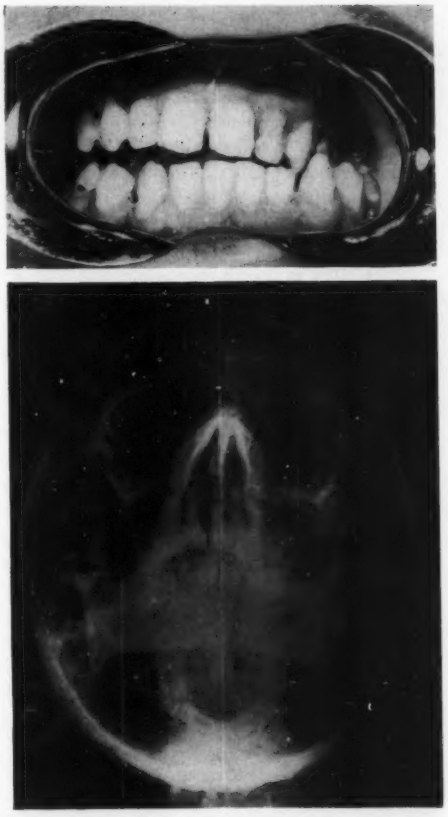


Fig. 1—Above: Preoperative view of patient's occlusion. Note maxilla is impacted upward and to right. Fracture of mandible extends inferiorly between left cuspid and lateral incisor. Below: Preoperative Waters' position roentgenogram showing facial and mandibular fractures

TREATMENT—By November 1 the swelling had subsided and trismus had relaxed to the extent that maxillary and mandibular impressions could be made for study models and for

the construction of a maxillary arch bar, the bar to be so designed that anterior or lateral traction could be applied.

On November 5, under intravenous sedation (75 mg. secobarbital sodium, 8.0 mg. morphine sulfate, 0.2 mg. atropine sulfate) and local anesthesia (lidocaine hydrochloride 2 per cent), the arch bar was attached to the maxillary teeth and Stout wiring was applied to the teeth of the mandible.

In order to use the mandible as a base for stabilization, an open reduction with transosseous wiring was performed on November 7 under general anesthesia. The fragments were brought into good approximation at the same time.

On November 8, a Balkan frame was erected for suspending a one pound weight to be attached to the loop on the patient's maxillary bar (Fig. 2, left).

Active traction was applied beginning at 7:45 A.M. on November 9 to advance the maxilla forward and laterally, the direction of the traction being accomplished by turning the patient's head to the desired position (Fig. 2, right). Advancement was noted at 15 minute intervals. By 4 P.M. the maxilla had been moved sufficiently so that intermaxillary elastics could be applied, and traction by means of the Balkan frame was discontinued for the night.

On November 10, at 9:45 A.M., traction from the one pound weight was again applied in an anterior direction only (Fig. 2, left). This anterior traction was continued for a two-hour period, at the end of which time the teeth were in good occlusion (Fig. 3, above).

On November 14, rubber elastics were replaced with no. 1 black silk ligatures and postoperative roentgenograms were taken. The fractured fragments were in good alignment (Fig. 3, below).

Healing continued satisfactorily, and on December 23 the fracture sites were firm to manipulation and fixation was discontinued. The occlusion was excellent (Fig. 4) and the patient's profile was normal.

COMMENT—To treat multiple fractures of the jaws properly, a thorough understanding of the patient's original occlusion is a necessity. A simple, quick, efficient, noncumbersome method should be devised to re-establish this occlusion.

The method described in this report for application of traction is an excellent means of reducing the Guerin or Le Fort type of fracture,

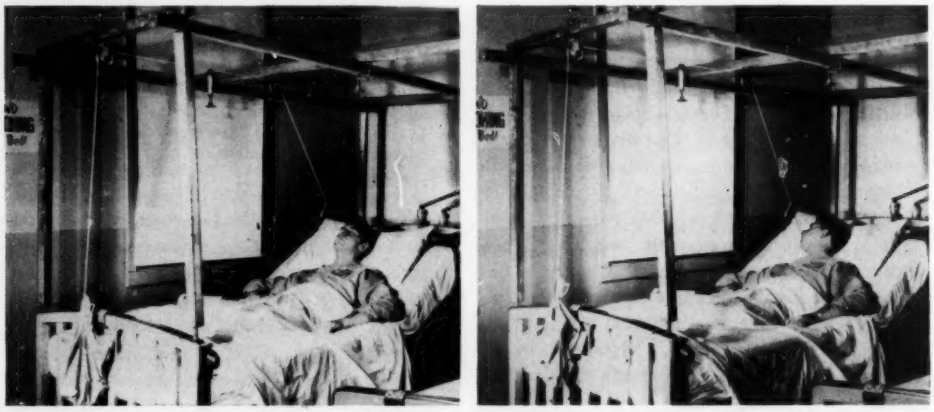


Fig. 2—Left: Active traction is being applied by means of Balkan frame. Note that direction of traction is from an anterior direction only. Right: Active traction has been changed from anterior to lateral direction simply by rotating patient's head

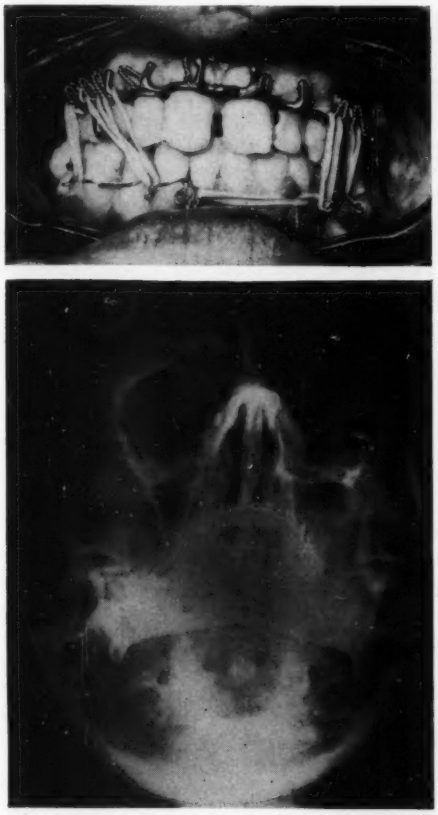


Fig. 3—Above: Postoperative view showing patient's teeth in normal occlusion supported by intermaxillary traction. Below: Postoperative view from Waters' position showing reduction of facial and mandibular fractures

Fig. 4—Final postoperative view of patient's teeth in normal occlusion

particularly when impaction of the fragments or malposition of the fragments with partial union exists. It can also be used as an aid in reducing certain types of mandibular fractures.

At this installation, by far the greater majority of horizontal fractures of the maxilla have been treated successfully by stabilizing the teeth in normal occlusion and allowing sufficient time for healing, without cumbersome extraoral appliances of any kind.

Preformed labial arch bars for utilization of this type of traction on impacted and old fractures of the maxilla are superior and prevent movement of individual teeth.

Malunited maxillary fragments have been repositioned successfully by this method of elastic traction as long as 75 days after injury.

When malposition of the maxilla has been untreated for 21 or more days, it is expedient to mobilize the maxilla partially by forceful manipulation under general anesthesia one or two days prior to the application of elastic traction.

■ Prayers for Death

Old men's prayers for death are lying prayers, in which they abuse old age and long extent of life. When death draws near, no one seems willing to die, and age no longer is a burden to them.—*Euripides.*

Open reduction of fracture of a mandible deformed by osteomyelitis: *report of case*

■ *Newton E. Allen, D.D.S., Selma, Ala.*

According to Gottlieb,[1] fewer than 50 cases of unilateral hyperplasia of the mandibular condyle had been reported in the literature prior to the 12 cases he reported in 1951. He further stated that the etiology is unknown, the coronoid process is never involved, and a characteristic symptom is a deviation deformity of the mandible away from the affected side.

Ossification of the stylohyoid ligament is seldom mentioned in literature. Gray[2] refers to ossification of this structure in man and in lower animals, and Douglas[3] reported the case of a 31 year old white housewife suffering pain he attributed to an elongated styloid process or an ossified stylohyoid ligament.

The interesting history and several peculiar findings associated with the following case prompt its being reported.

A 51 year old negro man was first seen on January 20, 1951. He had been referred by his physician for treatment of a fractured mandible incurred the preceding day when he fell from a horse.

HISTORY—The patient gave the history of developing acute osteomyelitis of the mandible after the extraction of lower left posterior teeth ten years previously, resulting in the loss of a large sequestrum and several additional teeth from the left side of the mandible.

EXAMINATION—Swelling of the left side of the patient's face and neck was evident, and there was an obvious protrusion of the mandible toward that side. However, the patient could open and close his mouth with a reasonable degree of ease. Palpation of the angles of the mandible revealed a decided difference in the contour of the right and left sides. On the right side the angle was prominent and acute, whereas on the left side there was a gradual curve from the condyle to the mental region. Bimanual palpation disclosed crepitation in the left side of the mental region. It was evident that there was a fracture in this region with the posterior fragment displaced superior and lateral to the anterior fragment.

Intraoral examination revealed ecchymosis of the tissues in the floor and left side of the mouth. The only teeth present were several anterior teeth and two bicuspids, all involved with periodontal disease. A slight tear in the mucoperiosteum was noted in the edentulous lower left bicuspid region.

Roentgenographic examination of the left side of the mandible (see illustration, above left) revealed an oblique fracture of the body of the mandible immediately posterior to the mental foramen. There was displacement of the fragments. The entire left side of the mandible was a peculiar shape, irregular in outline, and without the acute angle usually formed by a horizontal body and a perpendicular ramus. The coronoid process appeared to be an abnormally long, tortuous structure, and the condyle (illustration, above right) was hyperplastic, apparently because of the previous osteomyelitis. The stylohyoid ligament was ossified from the styloid process almost to the hyoid bone. The roentgenographic appearance of the right side (illustration, below left) was in decided contrast. There was a large horizontal body and a massive perpendicular ramus. Also evident on the right side was a partially ossi-

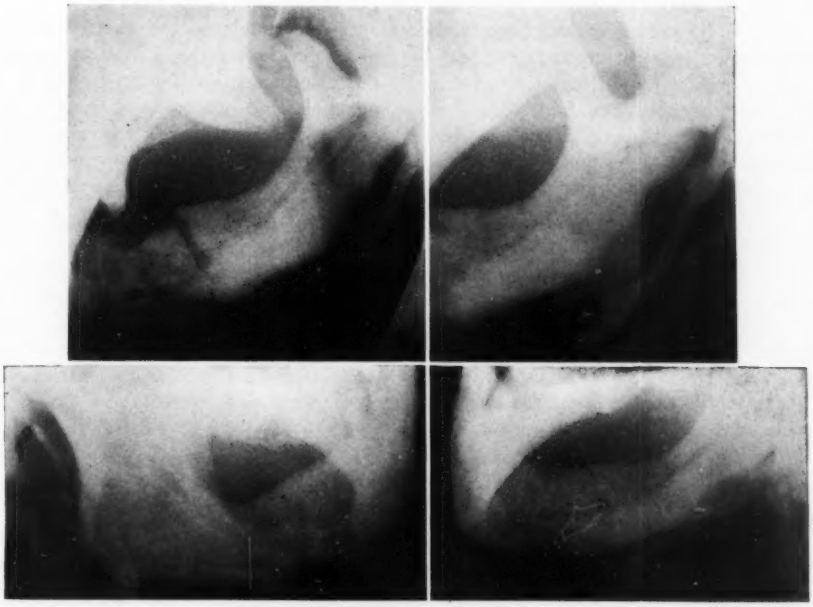
1. Gottlieb, Otto. Hyperplasia of the mandibular condyle. J. Oral Surg. 9:118 April 1951.
2. Gray, H. Anatomy of the human body. Philadelphia, Lea & Febiger Co., 1918, p. 145, 393.
3. Douglas, T. E. Facial pain from elongated styloid process. A.M.A. Arch. Otolaryng. 56:635 Dec. 1952.

fied ligament arising from the styloid process (illustration, below left).

TREATMENT AND COURSE—The patient was admitted to the Good Samaritan Hospital on the same day. Physical and laboratory findings on admission were within normal limits. A liquid diet was ordered, and massive penicillin therapy was begun. Since the few remaining teeth were inadequate for proper reduction of the fracture, open reduction was decided on, despite the history of previous osteomyelitis and the presence of an obvious bone deformity.

On the following day the fracture was reduced with the patient under local anesthesia. Premedication consisted of the parenteral administration of 15 mg. (¼ grain) morphine sulfate and 0.4 mg. (1/150 grain) atropine sulfate 45 minutes before the operation. The inferior alveolar, lingual and long buccal nerves on the left side were blocked intraorally with 2 per cent lidocaine hydrochloride containing epinephrine 1:100,000. After the intraoral injections were made, the patient's face was prepared and draped in the usual sterile fashion. Infiltration of additional anesthetic solution in the region of the fracture was done extraorally.

An incision approximately 4.5 cm. in length was made parallel to and just below the inferior border of the mandible through skin and subcutaneous tissue. The periosteum was reached by sharp and blunt dissection. It was incised over the fracture site and elevated to expose the fragments. A hole was drilled near the inferior border in the anterior segment and just above the mandibular canal in the posterior segment. A size 0.020 stainless steel wire was passed through the holes. After the fragments were manipulated into proper position, this wire was tightened by twisting. The almost



Above left: Oblique fracture of left mandible. Note peculiar bone shape and ossified stylohyoid ligament. Above right: Hyperplastic condyle. Below left: Large body and massive ramus of right mandible. Below right: View three months after operation discloses good position of fragments and some bony union

vertical placement of the wire held the oblique fracture in firm apposition, and to test the results the patient was asked to go through the motions of chewing. The bone moved as one unit and the fracture line was rigid. The periosteum and deep structures were sutured with no. 000 catgut and the skin, with interrupted no. 000 silk. The mandible then was immobilized by intermaxillary wiring of the few anterior teeth.

Postoperatively pain and swelling were moderate and the maximum postoperative temperature was 100°F. Convalescence otherwise was uneventful, and the patient was discharged January 24, the third postoperative day.

The patient was seen in the office five days after discharge. The incision had healed except for a small fluctuant region in the center. The sutures were removed and the accumulated fluid was drained through a small opening in the wound. By February 5 all swelling had disappeared, the incision had healed completely and there was no discomfort. By March 5 the mandible functioned without pain, and palpation revealed apparent union of the fragments.

The patient was last seen April 28, and a postoperative roentgenogram (illustration, below right) revealed good position and evidence of bony union. The mandible could be used freely, but the appearance of the face still indicated that there was a slight protrusion toward the left side.

COMMENT—A case is reported in which the following observations overshadow the fracture and the technical aspects of its management:

1. Many rare and unusual pathological entities are found in one individual.
2. Deviation of the mandible to the side affected by condylar hyperplasia is the opposite of usual observations.
3. Change in the outline of the coronoid process is contrary to findings in previously reported cases of condylar hyperplasia.
4. Deformity of the body and ramus of the mandible, the condyloid process, the coronoid process and the stylohyoid ligament in the presence of the history of osteomyelitis leads to the conclusion that osteomyelitis was an etiological factor in producing these abnormalities in this case.

Open reduction and direct wiring of fragments has become an acceptable procedure in the management of certain fragments of the mandible and was utilized in this instance despite the history of osteomyelitis and postinfection sclerosis. Healing was uneventful and resulted in good bony union.—*DuBose Building.*

■ The Law of Mind

There is a "Law of Mind" in action, intelligence taking form through this law; and its action in our experience can only be a result of motivation by our thought. This probably confuses many, for most people are a little bit superstitious when they come to think of things spiritual, not realizing that everything in the universe has to be governed by law and order; that there would have to be laws of the mind, spirit, just as there are physical laws.—*Ernest Holmes, Using the Law of Mind, 1958.*

Unusual foreign body in the infratemporal fossa: *report of case*

■ *James H. Quinn, D.D.S., New Orleans*

The finding of one half of a wooden lead pencil buried deep within the infratemporal fossa is considered unusual enough to warrant report of the case.

REPORT OF CASE—A white man, 33 years old, was referred for treatment of what was thought to be a fracture of the mandible. The referring physician believed this to be the diagnosis, even though he saw no evidence of fracture in the roentgenograms, because the patient had painful mandibular movements and partial trismus.

Six days before admission the patient had been hit on the left side of the face with a wrench while fighting. For the next two days he had no pain during mastication, but on the third day he began to have pain and was unable to open his mouth fully.

On examination, a healing, irregular, retracted, cutaneous laceration, about 0.5 cm. long, was seen on the left cheek just anterior to the masseter muscle (Fig. 1, left). A small, indurated mass was palpable extraorally at the anterior border of the ramus at its midpoint. It was palpated intraorally at the vertical level of the maxillary left second molar high above the mucobuccal sulcus. The patient was able to open his mouth only about half the normal distance, and there was a deviation toward the affected side. On extraoral and intraoral manipulation there was no mobility of the mandible that would suggest a fracture.

The posteroanterior and lateral oblique roentgenograms of the mandible, which the patient brought with him, showed no evidence of fracture of the mandible or radiopacity in the left cheek that might explain the palpable mass as a foreign body. No radiopacity was noted on the periapical sized roentgenograms made by placing the film inside the cheek high in the mucobuccal sulcus opposite the upper left second molar.

The most probable cause of the pain and trismus was thought to be a foreign body deep in the musculature of the cheek, such as a fragment of glass perhaps, which would not be very radiopaque and therefore would be difficult to detect roentgenographically. Exploration was recommended.

Forty-five minutes before operation the patient was given 100 mg. (1½ grains) of secobarbital sodium. A tuberosity injection was given and the surrounding buccal tissues were infiltrated with a 2 per cent solution of lidocaine hydrochloride and epinephrine 1:100,000. An extraoral injection also was given for additional anesthesia of the tissues of the cheek.

A horizontal incision was made through the mucosa about 1 cm. in length in the mucobuccal sulcus opposite the upper left second molar and just inferior to the orifice of Stensen's duct. A straight mosquito hemostat was used for blunt dissection toward the mass. The foreign body was contacted and grasped with the hemostat. At that time the patient complained of pain deep in the left ear. This was unexplainable then because the operative site had been anesthetized profoundly.

First attempts to remove the foreign body were met with resistance, but finally a small splinter of wood with green paint was obtained. At this point the foreign body was thought to

Head of department of oral surgery, Ochsner Clinic, New Orleans.

be a small piece of wood that may have been adherent to the wrench. The foreign body was again grasped with a mosquito hemostat and, with another similar hemostat, it was freed by further separation of tissue while it was pulled gently and guided forward through the buccinator musculature into the mouth. It proved to be one half of a green lead pencil that had been forced through the cheek between the coronoid process of the ramus and the maxilla into the infratemporal fossa. The reason for difficulty of removal became at once apparent when it was discovered that the broken end of the pencil with the jagged and spread wooden fragments was proximal and had to be pulled through the tissue first (Fig. 1, right).

The wound was irrigated, a small rubber dam was inserted into it, and the incision was closed with no. 000 black silk interrupted sutures. The drain was removed after 48 hours.

Postoperatively, penicillin therapy was instituted, and the patient was instructed to use heat intraorally and extraorally and to eat soft foods. One week postoperatively he had no pain on opening his mouth fully. On discharge

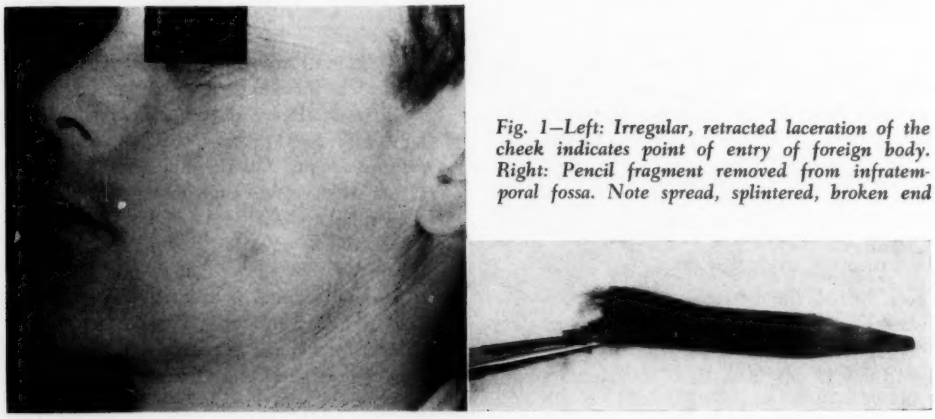


Fig. 1—Left: Irregular, retracted laceration of the cheek indicates point of entry of foreign body. Right: Pencil fragment removed from infratemporal fossa. Note spread, splintered, broken end

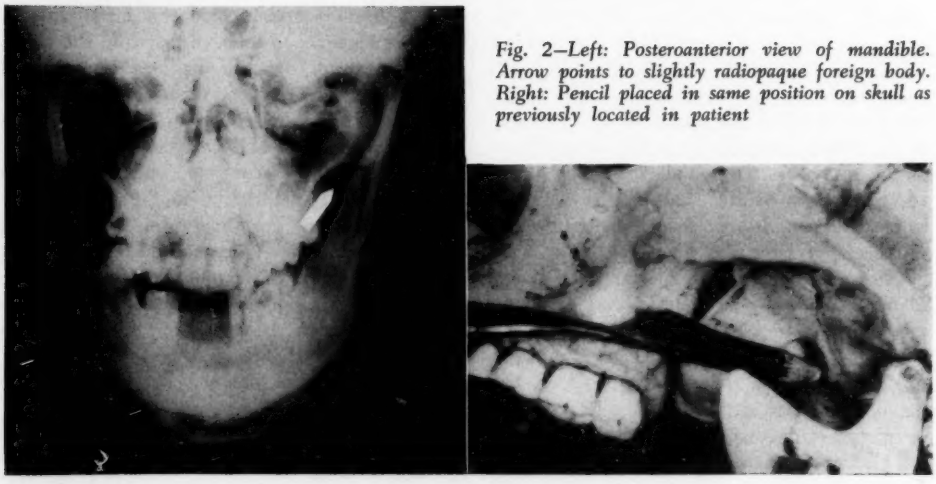


Fig. 2—Left: Posteroanterior view of mandible. Arrow points to slightly radiopaque foreign body. Right: Pencil placed in same position on skull as previously located in patient

two weeks postoperatively, mandibular function was completely normal.

COMMENT—It was difficult to explain the presence of the pencil in the infratemporal fossa in view of the history and previous roentgenographic interpretation. On review of the roentgenograms postoperatively, a faintly radiopaque linear object was detected (Fig. 2, left).

Further questioning of the patient after the operation disclosed that during the fight he had wrestled on the ground with his adversary. He also thought that he had had a wooden lead pencil in his left shirt pocket. It can be postulated that, while wrestling, the patient fell on the point of the pencil, driving it through the skin and musculature of the cheek between the ramus and the lateral surface of the maxilla posteriorly to the base of the skull; then the patient turned his head suddenly and the pencil broke in half, and it was covered by the skin and musculature when they assumed their normal position.

The reason for the unexplainable pain in the ear during the operation became obvious when the pencil was placed on a skull in the same location (Fig. 2, right) as when it was discovered. It was found that the point of the pencil had to be against the base of the skull, probably impinging upon the eustachian tube. The trismus also was explained when it was found that the pencil had to penetrate the external pterygoid muscle to reach the base of the skull.

This case points out the importance of surgical exploration if a foreign body is suspected even though there is no definite roentgenographic evidence, because the object may be only slightly radiopaque and superimposed on some of the bony structure.

■ Freedom to Think

There is a more important freedom than any of those mentioned in Franklin D. Roosevelt's famous four. It is the freedom to think. What good is freedom of speech without freedom to think? In this, science is the freest way of life. It is free to think. It can entertain new ideas and concepts as no other way of life can. The politician must ask what the effect of a new concept will be on his party and on his political future. The chauvinist must ask what the effect of a new idea will be on his nation or race. The sectarian must ask whether a new concept can be classified as truly orthodox, whether it falls within the tenets of his sect. The scientist, however, asks only if a new idea is true or if it shows promise as a working hypothesis.—*R. S. Gill, Scientific Freedom, 1958.*

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The future of oral surgery

THE STATUS OF ORAL SURGERY and the professional position of the oral surgeon in the future is dependent on many factors, all of which contribute in their own way to the progress of our specialty. It is important, therefore, that all of these factors be kept in mind and receive proper attention if oral surgery is to retain its proper position as an important branch of the healing arts.

The most important factors can be listed as follows:

1. Constant improvement in formal education.
2. Dynamic leadership by the American Society of Oral Surgeons.
3. Regional groups that are active, well-organized oral surgery societies and components of the American Society of Oral Surgeons.
4. Outstanding scientific meetings in both regional and national associations.
5. A strong, well-respected specialty board that grants certification only by comprehensive examination.
6. A JOURNAL OF ORAL SURGERY that is of the highest quality.
7. Adequate insurance coverage for oral surgery procedures by all insurance companies.
8. An increasingly active research program in oral surgery.
9. Cooperation with the American Dental Association in strengthening graduate training standards and evaluation of training services in hospitals.
10. Good professional and community relations.

Although some may consider one of the afore-mentioned factors more important than another, it is imperative to realize the importance of each of them to the future of oral surgery. The American Society of Oral Surgeons is rapidly growing to maturity. Its ability to influence the development of this program in the future will be watched with interest by dentistry, by medicine and by the public.—*Fred A. Henny.*

■ Terminating Immobilization in Mandibular Fractures

Q.—What criteria should I follow in determining when to remove intermaxillary immobilization appliances after reduction and fixation of a mandibular fracture?

A.—There is no substitute for clinical judgment in determining the time for terminating immobilization. Too early removal of immobilization appliances may result in complicating an otherwise uncomplicated fracture by permitting displacement of fragments. Uncomplicated fractures ordinarily give clinical evidence of solidification in four to six weeks with children showing the most rapid healing. Complicating factors which tend to extend time of healing are: infection; failure to establish sufficient immobilization; failure to establish apposition of bone fragments; and factors relating to the nature of the particular injury, as for example, compounding of the fracture, presence of comminution, degree of displacement, and the possible loss of osseous structure.

Though occurring less frequently, still another factor relative to bone healing is an impaired metabolism. This may result from many things, such as, uncontrolled diabetes, nephritis, hepatitis and malnutrition, either extrinsic as in the alcoholic, or intrinsic as in the aged. Should such a condition prevail, prompt measures should be instituted to correct the problem.

Experience has shown that, contrary to what may happen in long bones, clinical union results before a fracture line in the mandible is obliterated by the roentgenographic appearance of bony callus, therefore the roentgenogram will be of limited value in assessing this stage of union. The presence of what is termed "clinical union" is the principal criterion for mobilization of the mandible, and this feature is determined by careful and gentle manipulation. When the location of the fracture does not allow adequate manipulation, the clinical test consists of function.

These methods are sufficient for diagnosing the presence or absence of this stage of union, because the demonstration of mobility is evidence of lack of union.

■ Sectioning Third Molars with Incomplete Roots

Q.—Most erupted mandibular third molars respond well to sectioning with a chisel, but I have encountered difficulty in utilizing this technic when the roots are incompletely developed. Can you offer any suggestions as to how to handle this problem?

A.—The removal of the incompletely developed impacted third molar is complicated by the mobility of the tooth in its crypt. The technic of using a chisel generally should be abandoned, as the tooth will move away from the chisel when the blow is applied as occurs when a tooth has been loosened with elevators. Removal of these teeth without sectioning is not recommended, as considerable bone would have to be removed before the impacted tooth could be elevated from its base. Therefore, sectioning by some means must be employed, and the best method is to use a bur. Since the advent of the carbide burs and high speed engines, this can be accomplished with relatively little difficulty. The tooth may be sectioned in half or even quarters; thus, excessive bone loss is avoided and trauma is also reduced. Care should be taken to remove the debris left by the bur before the sectioned crown is removed.

This section devoted to queries and comments from readers on topics of current interest to oral surgeons and general dental practitioners is edited by S. Elmer Bear, Department of Oral Surgery, Medical College of Virginia, Richmond, Va., to whom readers are invited to send their communications. The answers, prepared by competent consultants, do not necessarily represent the opinions of any official scientific organization. Your participation in this section is invited.

The Editor.

It is interesting to note that nowadays there is more of a tendency to remove the incompletely formed third molar than formerly. This possibly may be accounted for by the feeling of some orthodontists that they can utilize the space made available and also avoid any eruptive force the third molar may have on the other dentition. Another reason may be the ability of the operators today to section these teeth and remove them with less trauma than in the past. Certainly a region uncomplicated by chronic infection has a tendency to heal more readily.

■ Order of Removal of Impacted Third Molars

Q.—When maxillary and mandibular impacted third molars on the same side are to be removed at the same appointment, is there any order of preference?

A.—Most practitioners prefer to remove the impacted tooth from the mandible first. The reason is that this tooth is usually more difficult to remove and the operative site will not be obscured by bleeding from the maxillary wound which would occur should the upper tooth be removed first. This same reasoning usually is applied when multiple extractions in both arches are contemplated. The mandibular extraction can be carried out with greater ease when there is no oozing from above. It is also advisable to suture the mandibular wounds before starting on the upper extractions so that the excessive bleeding in the mandible, which is a common occurrence, is under control by the time the surgery has been completed.

■ Movement of Tooth by Surgical Means

Q.—What is the prognosis for a tooth after "surgical orthodontics"?

A.—The movement of a tooth by surgical means should be the method of choice only when normal orthodontic procedures are out of the question. In the past several years numerous oral surgeons throughout the country have resorted to repositioning impacted cuspids and so forth primarily because of economic considerations on the part of the patient.

If the apex of the tooth involved has not completely formed, there is a reasonable chance of success if the tooth does not have to be moved any great distance and is rotated only slightly. Should the tooth be moved some distance or if the apex is almost complete, then one should consider the procedure as essentially being a transplant and a root canal should be anticipated.

The incidence of success in transplanting a completely formed tooth is increasing since better technics are being devised and antibiotics are readily available. One of the perplexing problems of moving teeth surgically is the phenomenon of root resorption. The rationale is not completely understood, although some authorities believe it due to impairment of cementum. There is no way of predicting when root resorption will occur and no sure way to stop its progress. It would be worthwhile to do an apicoectomy if the resorption is taking place in the apical third of the root. It has also been suggested that a metallic cuff be constructed and cemented around the root of a transplanted tooth.

■ Antibiotics Other than Penicillin

Q.—In an infectious process about the oral cavity, which is the antibiotic of choice when penicillin is ineffective or is contraindicated because of an allergic response?

A.—Numerous antibiotics including erythromycin, novobiocin, the tetracyclines and chloramphenicol would undoubtedly prove ineffective in most instances. It is interesting to note, however, that at the Medical College of Virginia hospital, penicillin-resistant infections have responded almost without exception to chloramphenicol. This clinical observation was borne out in bacteriological sensitivity tests on material taken at the time of surgical intervention.

CLINICAL OBSERVATIONS

■ Aminopyrine, long discredited because of its toxic effects on bone marrow resulting in leukopenia, neutropenia and agranulocytosis, has been shown to be most effective as an antipyretic when many of the newer drugs fail. An excellent article by Leonard Cardon and others in the March 1958 issue of the *Annals of Internal Medicine* discusses the potent effect of aminopyrine on patients who had high fevers of variable origins. In each instance antibiotics and routine antipyretics were used to no avail, and the febrile conditions persisted until the patients were placed on aminopyrine. The average dosage is 5 to 10 grains three or four times a day depending on the severity of the fever. The authors suggest that aminopyrine is a uniquely valuable and occasionally lifesaving theurapeutic agent which deserves more attention. They advise against its indiscriminate use and suggest it be used only under controlled conditions.

■ Recently there has been some evidence that certain nonspecific blood dyscrasias respond favorably to the adrenocortical steroids. This led to the use of the latter on several patients who had excessive and prolonged bleeding after multiple extractions of teeth. With each patient an attempt was made to control the hemorrhage with pressure packs, cellulose dressing, tension sutures, and so forth, but without success. Extensive blood studies were carried out and in each instance the diagnosis of nonspecific blood dyscrasia (capillary fragility type) was made.

In an effort to control the persistent bleeding, prednisone (Meticorten), a highly potent adrenocortical steroid, was used. In a few hours the bleeding was controlled. The average dosage is 20 mg. per day (5 mg. four times a day) administered orally, although there is no objection to administering somewhat larger doses if necessary.

The drug should not be administered if the patient has tuberculosis, chronic nephritis, acute psychosis, peptic ulcer, or any other disease in which cortisone or hydrocortisone is contraindicated.

■ One of the most common causes of vitamin K deficiency today is therapy with bishydroxycoumarin (Dicumarol) which produces hypoprothrombinemia. When a patient has had a history of coronary disease it should be determined if he is on a regime of anticoagulants. If so, he may present a difficult oral surgery problem. In consultation with the patient's physician, one of two methods of treatment is available. One is to discontinue the bishydroxycoumarin several days prior to surgical intervention and the other is the administration of vitamin K. The usual dosage is 2.5 mg. to 5 mg. given intravenously, intramuscularly or subcutaneously. Thereafter additional doses every 12 hours are administered if needed. If emergency surgery is necessary, a vitamin K_1 preparation should be given by slow intravenous injection.

Readers are invited to send their clinical observations to S. Elmer Bear, Department of Oral Surgery, Medical College of Virginia, Richmond, Va.

■ TUMOR SURGERY OF THE HEAD AND NECK. By Robert S. Pollack, M.D. 95 pages with 49 illustrations. Index. $5. Philadelphia, Lea & Febiger, 1957.

In the preface for this book, the author says, "Tumor surgery of the head and neck is becoming, more and more, a specialty of its own. . . . As a field of surgery it . . . bridges the gaps between general surgery, otorhinolaryngology, oral surgery and plastic surgery. . . . A book which can help bridge the gap between several specialties and improve the techniques involved, should be of value. It has been with this hope in mind that the present volume was written."

This book is a specialized one and adheres very closely to its subject. The author has used less than 100 pages and his book contains 49 excellent diagrammatic drawings. With this he has set forth in a clear, concise manner the subject which he presents.

Irradiation as a treatment for tumors of the head and neck is dealt with briefly. The book primarily is one in which surgical technics for the eradication of local malignancies are deftly described. There is little discussion of benign tumors.

The author describes the procedures for the examination of the oral cavity for cancer. Here he emphasizes the value of palpation. He says, "One should use the index finger in examining many normal tongues and tonsils, for once acquainted with the feel of the normal, the feel of the unusual is no problem."

Many topics are dealt with briefly; missed diagnosis, the biopsy, blood replacement, postoperative care, and tracheostomy are some of them.

The author concludes his book by saying, "The success of a cancer operation cannot be judged entirely on the basis of five-year survival. Rather, the success of an operation may depend more on whether there is any local recurrence. All patients who undergo cancer surgery cannot be cured, but without local recurrence they are greatly helped. This fact is apparent with tumor surgery of the head and neck and compels the surgeon to consider carefully each patient before denying him the benefit of a carefully planned and properly performed operation."—*Warren R. Schram.*

■ DIE ZAHN-, MUND- UND KIEFERHEILKUNDE: EIN HANDBUCH FÜR DIE ZAHNÄRZTLICHE PRAXIS (THERAPY OF THE TEETH, MOUTH AND JAWS: A MANUAL FOR DENTAL PRACTICE). Edited by Karl Häupl, Wilhelm Meyer and Karl Schuchardt. For sale in complete set only. DM.650. München, Urban & Schwarzenberg, 1954-1958.

Issue 29 contains parts of volume III (General and Specialized Surgery of the Mouth and the Jaws).

■ CLEFT LIP, CLEFT JAW AND CLEFT PALATE. By Richard Trauner. 79 pages with 71 illustrations.

This well-written comprehensive chapter on congenital deformities of the maxillofacial region is the product of years of the author's experience and painstaking study in hospital wards, operating rooms and pathological and experimental laboratories. It manifests an uncommon intellectual curiosity and devotion to detail on the part of the author, who has made an effort to separate fact from the clinical impression, theory, and fancy frequently found in the literature on this subject. He correlated his findings with carefully compiled data from the Clinic and Polyclinic of the Dental School of the University of Graz, Austria, and from his own practice.

The extensive bibliography accompanying this contribution is carefully selected. At times the author may give the impression of being dogmatic, but in most instances the background of fact and reasoning behind his conclusions

is apparent. The reader need not agree with all the ideas, definitions and methods presented to appreciate their significance.

The classification of congenital oral deformities is simple and clear. The sections on Anatomy of Cleft, Teamwork and Timing of Surgery, Surgical Methods (Langenbeck, Hagedorn, Le Mesurier, Veau, Axhausen, Trauner, Wassmund, Schuchardt, Blair and Brown, Browne, and the unilateral or bilateral Z-technic), Anesthesia in Cleft Surgery, Speech Defects and Phonetics after Cleft Surgery, Prosthetic Service in Rehabilitation After Surgery, Orthodontic Treatment of Cleft Patients, and The Dentist's Role in the Care of Cleft Patients are excellently presented and the results carefully analyzed. Successes and failures are reviewed in an effort to improve surgery, postoperative care and rehabilitation to leave the patient with minimal disability.

This chapter is a splendid contribution and should be studied by all who are interested in congenital oral defects. However, it must be read carefully to obtain maximum value.

■ Clinicopathologic Study of Tumors of the Jaws and the Surrounding Soft Tissues. By A. Rehrmann. 71 pages with 84 illustrations.

This chapter on tumors in the oral cavity is concerned not only with the gross and microscopic characteristics of neoplasms but also with interesting aspects of the behavior and clinical effects of specific tumor types. Hematological, biochemical and endocrinological features are included where they are helpful in the understanding, diagnosis and prognosis of the progress of malignancy.

Etiologic factors, theories on the histogenesis and controversies in classification are discussed in a manner that should be useful to both the practicing dentist and the oral surgeon. Full understanding of the histogenetic problems is possible only through comprehension of the normal development of specific parts of the oral cavity; therefore, certain aspects of embryology and structural function are included. This is helpful in emphasizing similarities and differences existing between normal and abnormal tissue reactions, especially between hyperplastic and neoplastic processes. The text is excellently arranged in sections according to sites and tissues involved with a histogenetic grouping of tumor types, benign or malignant, occurring in the maxillofacial region. The material presented is illustrated with many photomicrograms of common and rare tumors. The entire chapter is easy to read and well written.

Issue 29 contains also the beginning of a contribution by B. Lindemann on Irradiation Therapy, which will be reviewed at a later date. Issues 30 and 31 contain parts of volume I (Anatomy, Physiology and Pathology).

■ Oral Pathoanatomy. By W. Rotter and H. Lapp. 266 pages with 237 illustrations.

This chapter on oral pathology and anatomy reflects recent changes in relative values which have taken place in the subject literature. It also emphasizes the importance of a closer correlation between studies of structures with research on function, and introduces a biologic implication into the field of oral pathoanatomy in its relation to general and specialized dental practice.

The combined work of outstanding authors has been edited smoothly to produce a text of uniformly readable quality. The introductory section presents fundamental material on oral inflammations. It is followed by sections on Disturbances of the Protein Metabolism, Dystrophy of the Jaws, Cysts in the Oral Cavity, Hyperplasia and Neoplasms, Blood System, Connective Tissue, Locomotor, Respiratory and Masticatory Systems, Glands, and Central and Peripheral Nervous Systems.

There is a wealth of illustrations. The pathoanatomical views are directly and explicitly labeled, a relief to readers who otherwise would have to decipher many abbreviations and fine-print legends. The section on abnormal growth presents much new, interesting and valuable material. A large bibliography concludes this interesting contribution.—*Paul H. Glucksman.*

■ CARDIAC ARREST. Paul R. Hinchey, M.D. A.M.A. Arch. Surg. 74:365 March 1957.

Cardiac arrest is the sudden, unexpected complete cessation of heart action, which often occurs in the operating room in the anesthetized patient. It is probable that there are from 3,000 to 10,000 instances a year, and Beecher and Todd estimate that cardiac arrest occurs in one in 3,000 anesthetized patients. Cardiac arrest may occur in the anesthetized patient of any age, with any type of anesthetic including local anesthesia and during any type of operation, major or minor. In the largest series of instances, arrest was most frequent in the first decade of life. In a more recent article it was reported to occur more often in elderly patients.

Cardiac arrest occurs more commonly in operations on the throat, neck, mediastinum and heart. Ninety per cent of these accidents occur in the operating room in anesthetized patients. Cardiac arrest happens more often at the beginning or at the end of operations. Vagal stimulation during initial intubation or during extubation and tracheal toilet at the end of the operation is more comprehensible, but in a number of instances arrest is first noticed as the surgeon is about to make his incision or when the position of the patient is changed.

The causes of a cardiac arrest are four in number: 1. Hypoxia is the primary concern of the anesthetist. Lack of oxygen may be due to lack of a patent airway, inadequate exchange of alveolar air, inadequate red blood cells to carry the oxygen, inadequate myocardium to convey it and inadequate cell utilization. 2. Hypercapnia may be prevented by adequate ventilation. This not only involves supplying enough oxygen but also eliminating carbon dioxide. In addition to respiratory acidosis, metabolic acidosis, with increased sensitivity of the conduction system, may result in a patient because of prolonged sepsis, unregulated diabetes or protracted anesthesia. 3. Electrolyte imbalance can cause irregular heart action. It has been suspected recently that some instances of cardiac arrest may have resulted from multiple transfusions, in which the citrate added to the transfused blood united with the available, circulating calcium ion to result in a calcium deficiency. 4. Direct or reflex stimulation of the vagus nerve plays a prominent role in cardiac arrest. There is individual variation in the degree of reactivity of the vagus nerve to such stimuli as pressure on the eye ball or on the carotid sinus. Vagal inhibition of the heart is accentuated in the presence of diminished oxygen or increased carbon dioxide.

The prevention of cardiac arrest is discussed. Measures for prevention include medical management preoperatively, with restoration of normal blood volume prior to surgery, regulation of electrolyte balance and recognition and adequate treatment of depleted cardiac or pulmonary reserves. The preventive measures during surgery are careful selection of anesthetic agent, an adequate level of preoperative sedation, the use of atropine sulfate or scopolamine hydrobromide, gradual and careful induction, an adequate airway, adequate oxygen intake, elimination of accumulated carbon dioxide and continuous and close observation of the cardiac rate and rhythm. The use of the proper level of anesthesia for the individual patient is an important preventive measure as well as maintenance of adequate blood volume. The position of the patient during surgery may make adequate aeration difficult. The surgeon should be cautious about traction on organs in the vicinity of the heart and great vessels and be aware of stimuli to the vagus nerve either directly or by reflex via the large nerve plexuses. Careful removal of the endotracheal tube is important. Hyperventilation at end of operation with pure oxygen may bring about arrest or fibrillation from sudden dropping of blood pressure due to rapid recovery from respiratory acidosis. Forced ventilation may also cause a dangerous period of apnea due to the narcotizing effect of carbon

dioxide on the medullary centers, which may not respond to the stimulus of pure oxygen.

The treatment for cardiac arrest calls for courage. Do not call for a stethoscope in order to listen for a heart beat. Do not take time to change the blood pressure cuff from one arm to another. Do not delay to obtain an electrocardiogram or a medical consultant. Do not postpone thoracotomy while someone is obtaining a cardiac pacemaker. Do not postpone thoracotomy in the hope that the heart beat will be resumed when the anesthetist flushes the lungs with pure oxygen. Do not postpone thoracotomy for longer than 30 seconds while the precordium is being thumped or the myocardium is stimulated by a long empty needle thrust through the chest wall.

The treatment for cardiac arrest is immediate thoracotomy and manual systole at the rate of 40-50 times per minute. This procedure and the procedure for assistance by the anesthetist is described. The prognosis for cardiac arrest is discussed.—*Irwin A. Small.*

■ The Block "V" Excision for Facial Problems. G. B. O'Connor, M.D.; M. W. McGregor, M.D., and S. Saffier, M.D. Plast. & Reconstr. Surg. 19:5 Jan. 1957.

The following are basic requirements for a V excision of a tumor that involves the lip, ear or eyelid borders:

1. A block of tissue should be removed to minimize any chance of cutting through the tumor base.

2. The immediate lymph glands should be included in the excision.

3. The incision should be designed to give additional length to the final suture line, as well as to make an accurate and tensionless closure. This will prevent any v-ring or retraction of the wound edge, as well as allow a fine linear scar to be formed.

The opinion expressed in the paper is that the classic V excision does not fulfill these requirements completely, and the block V excision is advocated. This procedure has been used for many years and is being reemphasized in this study.

The block V excision is carried out by making two parallel incisions on either side of the tumor. The two incisions are then angled obliquely toward each other. The block of tissue is removed, and the adjacent tissues are widely undermined and advanced. The layers of mucosa muscle and skin are closed individually.

By use of this procedure, one half to three fourths of the lip may be removed, with primary closure and without additional external scars.—*Gilbert S. Small.*

■ Continuous Proteolytic Therapy for Decubitus Ulcers. John E. Morrison, M.D., and John L. Casali, M.D. Am. J. Surg. 93:446 March 1957.

The authors describe the decubitis ulcer as an ideal subject for the study of subnormal healing since the physiological elements, hematological and nutritive, that support normal wound healing are almost inevitably in diminished supply. The objective of treatment at these sites is to assure optimal supply of oxygen and nutritive elements by maintaining the integrity of capillary and lymphatic systems. The factors which interfere with these systems are necrotic tissue and purulent debris, capillary blockage by fibrin thrombi or agglutinated erythrocytes and a barrier of excessive collagen frequently laid down in the initial stages of slow healing lesions.

A clinical study was reported involving these lesions in 30 elderly patients, using an ointment containing the proteolytic enzyme papain with urea and sodium copper chlorophyllin. Papain is proteolytic and fibrinolytic and without apparent effect on viable tissue. Urea was added to aid protein digestion particularly in encrusted lesions. Chlorophyllin was added for its antiagglutinin and anti-inflammatory properties. The ointment was added under standard dressings which were changed daily, at which time the lesions were irrigated with saline solution to remove the liquefied matter.

Results obtained were reported to be superior to any previously observed by these

authors. Of the 30 patients, complete healing was obtained in 27 in from two to six weeks. Complete débridement of the ulcers was accomplished in three to five days, and thereafter the lesions remained clean, with progressive granulation, until healing was complete.—*William J. Amaral.*

■ EXPERIMENTAL AND CLINICAL STUDY OF NEW GROWTH OF BONE IN A CAVITY. Gordon Murray, M.D.; R. Holden, M.D., and W. Roschlau, M.D. Am. J. Surg. 93:385 March 1957.

Three conditions are necessary for the growth of new bone: (1) the presence of a blood clot, (2) preserved osteoblasts, and (3) contact with living tissue. To have a hematoma of the right size and shape and in the right position, it is necessary to prevent soft tissues from pressing in and displacing or molding the blood clot, either during its formation in the fluid and semi-solid state or later on.

Bone grafts prevent soft tissue from filling the space in which it is desired to grow bone. Futhermore, if soft tissue can be kept from filling the space, bone will grow there just as well or even better without as with bone grafts.

If sufficient space is afforded at the desired site, the experimental growth of bone is much more rapid in the absence of bone grafts, because if the graft is eliminated, the usual delay due to absorption of dead bone and its replacement by new bone is avoided. The splinting effect of grafts is of minor importance since most fractures and spinal fusions unite satisfactorily without internal splinting. Grafts which are secured as in spinal fusion are particularly liable to fracture. In the absence of grafts, the proper molding, size and density of new bone are better controlled.

During experiments performed on dogs in which periosteum was removed, bony surfaces of long bones, cancellous tissue and spinal regions were roughened or the cortex removed. Fenestrated plastic cages were placed over such areas to keep the soft tissues away and allow creation of space, into which new bone was formed. The factor limiting the level to which bone grew was determined by the size of the cage which could be accommodated under muscle and fascia and not cause ulceration through to the skin as a result of pressure.

This method has been used successfully in spinal fusions in 56 human patients with thin autogenous strips of tibial grafts used as outer barriers to roof such cavities prepared in the lumbosacral area, not for specific virtue as grafts but to eliminate the need for later removal of a plastic material.—*William J. Amaral.*

■ THE SURGICAL TREATMENT OF CHRONIC DERANGEMENTS OF THE TEMPOROMANDIBULAR JOINT. B. C. Martin, M.D.; J. C. Trabue, M.D., and T. R. Leech, M.D. Plast. & Reconstr. Surg. 19:131 Feb. 1957.

Disturbing factors of the temporomandibular joint may be classed as systemic, intrinsic or extrinsic. Intrinsic factors are those in which there is a malocclusion or loss of vertical dimension. Extrinsic factors include trauma and prolonged chewing or hard foods. These traumatic conditions may produce local pain or may be referred to the ear or down into the neck. There may be limitation of motion of the mandible, with resulting trismus and deviation of the mandible to the affected side. If there is ankylosis of the joint, this indicates that the meniscus has been interposed between the condyle and the articular eminence. There also may be impaired hearing, dizziness, and occipital or postauricular headaches. There may be various sensations of the throat, tongue and side of the nose. These symptoms have been called Costen's syndrome.

If a surgical procedure is indicated, the following technic is advocated. A preauricular incision is made, and the skin is undermined and retracted. The superficial fascia is incised parallel to the fibers of the facial nerve. The temporomandibular ligament is exposed and is stripped from its attachment to the zygomatic arch. The capsular ligament is exposed and divided, and the disk is removed completely. The capsule is reapproximated and sutured. The temporomandibular ligament is sutured back to the periosteum posterior to its

original attachment. This is done to decrease the forward riding of the condyle. The skin is then closed. Immobilization of the jaws is then attained by arch bars and intermaxillary elastics. The mandible is kept at rest for three weeks by this fixation.

A survey of 27 patients indicated that the most common symptom was pain (55%), the next being clicking (22%). The most common cause was found to be an intrinsic dental problem (44%). Of these patients, seven required surgery.—*Gilbert S. Small.*

■ PRIMARY CHONDROSARCOMA OF THE MANDIBLE. Nicholas M. Azzato, M.D. Plast. & Reconstr. Surg. 19:137 Feb. 1957.

Chondrosarcomas may arise from two separate sources. "Primary" chondrosarcomas arise from previously normal bone, periosteum or cartilage. "Secondary" chondrosarcomas arise from preexistent benign lesions.

Primary chondrosarcomas usually occur in a younger age group (14-21 years) than secondary chondrosarcomas (30-50 years). The primary lesions have a shorter clinical course and a much poorer prognosis. Five year survivals occurred in 15 per cent of 121 patients with primary chondrosarcoma of all sites, as compared to 4 per cent of the 118 with secondary lesions. The treatment for both types of lesions is the same—radical excision.

A 23 year old man was first seen in March 1955, when he noticed a mass in the lower left molar region. A biopsy specimen was taken in June 1955, and a diagnosis of benign mixed tumor of salivary origin was made. He was seen again in July 1955, at which time the only demonstrable pathological condition was the intraoral tumor. All physical findings were normal. The roentgenogram showed a normal architectural pattern of the mandible. A sialogram of the left parotid gland showed puddling at the inferior aspect. A second biopsy specimen was taken and was classified as a malignant mixed tumor. One pathologist diagnosed the tumor as a chondrosarcoma.

A radical neck dissection on the left side with a continuity resection of the tumor was performed. The pathological diagnosis was chondrosarcoma of the mandible, incompletely resected. The remaining portion of the mandible was then resected along with the surrounding soft tissue of the infratemporal and pterygoid fossas.

The patient's condition deteriorated, and he died in January 1956, about nine months after he first sought treatment. Autopsy revealed primary chondrosarcoma of the mandible, with extension into the neck and mediastinum and pleural and pericardial seeding.—*Gilbert S. Small.*

■ OSTEORADIONECROSIS OF THE MANDIBLE. J. Gaisford, M.D., and F. Rueckert, M.D. Plast. & Reconstr. Surg. 18:436 Dec. 1956.

Necrosis of the mandible is usually produced by a combination of heavy irradiation, infection and trauma. The mandible is susceptible to the effects of radiation because of its shape, its compact composition and the presence of a single nutrient artery. The irradiation may also produce a diminished and more acid salivary secretion which may predispose the patient to less effectiveness of oral hygiene and tooth decay.

The early stages of radionecrosis may be manifested only by dental symptoms of hypersensitivity and toothache. Later symptoms are severe and constant. As necrosis proceeds there will be trismus, prolonged pain which does not respond to narcotics, a foul smelling mouth and soft tissue involvement, with formation of fistulas. There may be malnutrition because of the pain and trismus. These patients may become confirmed users of narcotics and alcohol.

The authors are in agreement with the study by Wildermuth and Cantril that prophylactic extractions are probably not necessary and that dental care can be carried out with antibiotic therapy and good oral hygiene. Conservative treatment consists of allowing sequestration to occur. The authors advocate surgical intervention in all instances of irradiated bone in which there are the onset of necrosis and closure of the soft tissue defect.

The cases of 54 patients with radionecrosis of the mandible are reviewed. Of these, 16 pa-

tients were treated conservatively, and all are dead. Thirty-eight patients were treated by surgery, with a 47 per cent survival rate, the interval being from three months to seven years. It is interesting that 45 per cent of the irradiated mandibles showed only necrosis with no residual tumor.

Palliative removal of the irradiated mandible is indicated when life expectancy is short due to metastasis. In these instances there is relief from the pain and discomfort of the necrosing bone.—*Gilbert S. Small.*

■ OBSERVATIONS ON THE ORIGIN AND NATURE OF THE ADAMANTINOMA WITH SPECIAL REFERENCE TO CERTAIN MUCO-EPIDERMOID VARIATIONS. J. J. Hodson, Ph.D., D.D.S. Brit. J. Plast. Surg. 9:38 April 1957.

The adamantinoma is a slow growing tumor occurring chiefly in the mandible, more rarely in the maxilla and very rarely in the pituitary gland. Over 1,000 cases have been reported, three quarters of which have appeared during the last 20 years. Clinical experience of recurrences, and histopathological evidence of involvement beyond the limits of roentgen-ray manifestation have caused treatment to veer toward more radical surgery, though the author has observed conservative measures such as enucleation and marsupialization to result in 8 to 10 year cures without recurrences to date.

Much remains to be learned of this tumor regarding its origin, as well as structure and behavior. Clinicians should make their material available to oral pathologists for study and research. The time of onset of these tumors is impossible to ascertain and no activating factors appear to be known though infection is suspected. Case histories show variations in rate of growth, and histological assessment of behavior is presently unreliable. Salivary cylindromas and certain slow-growing but anaplastic adenocarcinomas of the jaw not infrequently are mistaken for adamantinomas for there are many points of similarity regarding their clinical and histological character.

The tumor is not simply an expanding one but is locally invasive, and no histological features supporting a clinical course of more than local malignancy have been demonstrated adequately. The microscopic features are well known and were summarized by Thoma. That the adamantinoma is pleomorphic in cellular detail and pattern is seen by the eight types quoted from Thoma's (1950) classification. The author believes that the glandular types represent follicles with central liquefaction extending to the cuboidal or columnar outer layer, or in other instances an illusion of glandlike formations consisting of epithelial-encircled areas of necrotic and liquefied stroma, a feature also seen in basal cell carcinoma. The study of cellular details and patterns of the adamantinoma has not been exhausted, and two well defined variations in structure in addition to those commonly recognized are shown: (1) epithelial mucin principally associated with epidermoid epithelium, and (2) the presence of a large granular epithelial cell, most conspicuous in the mucoepidermoid adamantinomas, which very closely resembles the cells of the granular cell myoblastoma or some large foam cells.

The presence of glycogen and its amount found in adamantinomas is variable, and its significance is problematical.

The majority of writers have stated that the adamantinoma arises from odontogenic epithelial residues, either from the dental lamina or from periodontal residues. False conclusions of a central origin may be due to the illusion of roentgenograms and the study of only portions of jaw tumors and cysts.

It is this author's opinion that although the pure adamantinoma may arise directly from tooth germ residues, it probably arises more often from stratified squamous epithelium from surface origin, the reduced enamel epithelium, or the stratified squamous lining of odontogenic cysts associated with some initiating factor in the environment of such epithelium. Probably the early removal of odontogenic cysts is a factor limiting the incidence of adamantinoma since the reduced enamel epithelium is, with few exceptions, present in all unerupted or partially erupted teeth, and therefore the reduced enamel epithelium is within the jaws, or continuous with the oral mucosa, depending on

the degree of eruption. Sonesson found in 39 cases of adamantinoma that 25 per cent definitely had arisen from odontogenic cysts. This ability of basal cells of stratified squamous epithelium from surface or cysts to differentiate into adamantinoma suggests that this origin can now be accepted. The clinical importance of this lies in the fact that since inflammation and trauma are the main causes of hyperplasia of epithelium in the jaws and mucosa, including the squamous differentiation of epithelial residues, care must be taken to eliminate these factors, especially in the mandibular third molar region.

There is often a striking resemblance of the well-differentiated follicles of columnar cells and central stellate cells of adamantinoma to the differentiated stages of the enamel organ prior to dentinogenesis and amelogenesis. Absence of differentiation of odontoblasts may be due to the absence of the necessary type of embryonic odontogenic mesoderm. Absence of enamel probably is due to absence of dentin but may well be due to abnormal arrangement of cell layers, as, for example, failure of the stratum intermedium to differentiate.—*William J. Amaral.*

■ Fibrous and Granulomatous Lesions of the Jaw Bones. Charles A. Waldron, D.D.S., M.S.D. Am. J. Surg. 94:877 Dec. 1957.

The jaw bones on occasion are the site of abnormal regions of varying extent which roentgenographically may vary from well circumscribed "cystic" areas to more or less diffuse involvements showing alternating areas of radiolucency and radiopacity. When other specific neoplasms and cysts are excluded by biopsy, these lesions will show essentially fibrous tissue, with or without the presence of giant cells and with or without regions of new bone or osteoid formation.

A wide variety of terms have been used to designate some or all of the lesions in question. The classifications for this group which the author uses are: (1) fibrous dysplasia, (2) ossifying fibroma, (3) osseous dysplasia, (4) giant cell lesions (benign giant cell tumor?), and (5) cherubism. All the lesions under question have many points of similarity, as well as certain differences. Proper diagnosis and intelligent treatment should be based on the combined efforts of the surgeon, radiologist and pathologist.—*Herbert J. Bloom.*

■ Primary Hepatoma with Metastasis to the Mandible. Arthur Dick, M.D., D.D.S., Sterling G. Mead, D.D.S., Maurice Mensh, M.D., and William E. Schatten, M.D. Am. J. Surg. 94:846 Dec. 1957.

Primary hepatoma is uncommon, hepatoma with metastasis is rare, but primary hepatoma with metastasis to the mandible is without precedent in the literature up to this point. During the period of observation the patient did not complain of any pain in his mandible. The patient did not have any clinical signs or symptoms of cirrhosis. An unprecedented instance of metastatic lesion of the mandible is reported, which proved to be from a primary carcinoma of the liver.—*Herbert J. Bloom.*

■ A New Surgical Procedure for the Creation of a False Temporomandibular Joint in Cases of Ankylosis by Means of Non-electrolytic Metal. Arthur E. Smith, M.D., D.D.S., Sc.D., and Marsh Robinson, M.D., D.D.S. Am. J. Surg. 94:837 Dec. 1957.

A new surgical procedure in the treatment of ankylosis of the temporomandibular joint has been developed. A wax pattern for the metal onlays is constructed in such a manner that the interposed metal between the proximal and distal fragments of the osteotomy will be 3/32 inch wide and will be in the arc of a circle, the center of which passes through the center of the ankylosed condyle. This metal onlay and screw are constructed of a form of no. 18-8 stainless steel which is relatively nonelectrolytic, nonmagnetic, noncorrosive and produces negligible tissue reaction.

The author prefers the preauricular approach as it gives more direct access to the division of bone and placement of the screw

to hold the metal onlay. A slot 3/32 inch wide is created to conform to the previously prepared onlay with a bone bur at the base of the condylar neck. The onlay is then interposed in this curved slot and a hole is drilled in the position of the onlay tab hole on the lateral surface of the ramus. The onlay is then fixed to the ramus by a special precision-made, thin, hexagon-headed, self-tapping, nonelectrolytic metal screw.

Older procedures result in a unilateral, retrusive, open bite type of malocclusion, with a loss of masticatory function and abnormal stress on the remaining teeth. By this new surgical procedure, a normal intermaxillary relation, a normal profile and a usable masticatory organ can be re-established.—*Herbert J. Bloom.*

■ CORRECTION OF THE "WHISTLE DEFORMITY." George F. Crikelair, M.D., and Maurice J. Hickey, D.M.D., M.D. Surg., Gynec. & Obst. 104:759 June 1957.

Among the possible deformities which need revision after primary lip repair is the "whistle deformity." Here there is a fairly constant pattern for which a standard procedure can be used to advantage. This deformity not infrequently follows the repair of a complete or incomplete bilateral prealveolar cleft in which the lateral segments of the lip are sutured to the prolabium, retaining the vermilion of the prolabium as the center segment of the lip. In the "whistle deformity" the mucocutaneous line of the upper lip is even. The lateral portions of the vermilion beneath the mucocutaneous line are full and equal and are a good match with the full lower lip. The central or prolabial segment is lacking in vermilion fullness. As a result, with the mouth in a relaxed position, either a dark hole is seen or portions of the upper central incisors are visible, depending on the lighting.

The most satisfactory procedure would seem to be a V-Y type of advancement which can be done in one operation. The mucous membrane along with the submucosa is advanced downward and outward as a flap based at the mucocutaneous line. This procedure has been of value not only in secondary revisions of bilateral cleft lips but also in an occasional unilateral lip repair and in electrical deformities resulting from burns of the lip in which there has been a similar vermilion deficiency. Detailed sketches regarding the technical aspects of this procedure are presented.—*Myron Kaufman.*

■ RADICAL SURGERY FOR INTRAORAL CANCER WITH PRESERVATION OF THE MANDIBLE. Frank S. Butler, M.D., and William F. Harrigan, M.D., D.D.S. Am. J. Surg. 94:857 Dec. 1957.

The mounting evidence of confirmatory reports regarding intraoral cancer gives strong support to the choice of surgery as the indicated therapy, and since most patients, when they are first seen, already have a moderately advanced tumor, the surgical approach must be radical. Modification of the accepted surgical technic is suggested to preserve the function of the mandible yet maintain the requisite wide excision of the malignant process under certain rigid conditions. In carefully selected instances, the author modifies the present radical surgery to maintain the *en bloc* resection and yet retain the mandible so as to preserve the normal functioning of the jaw.

Rigid conditions must be established for a modified radical procedure in the control of this disease. The *en bloc* pull-through procedure may be tentatively classified as follows: (1) deep pull-through, in which the neck dissection is done in continuity with a neoplasm deep or medial to the mandible; (2) segmental mandibular pull-through, in which the segmentally resected portion of bone is added to the tissue delivered into the neck dissection; (3) superficial pull-through, in which the widely dissected lesion is brought into the neck dissection superficial or lateral to the mandible.

Twelve patients were operated on from 1952 to the present. Various types of cancer were present and no conclusions are drawn.—*Herbert J. Bloom.*

■ A Cephalometric Study of the Growth of the Soft Palate. J. D. Subtelny, D.D.S., M.S. Plast. & Reconstr. Surg. 19:49 Jan. 1957.

Successful treatment of cleft palate depends on the ability of the diagnostic team. In the velopharyngeal region, diagnosis is made to determine the adequacy of velar tissue, the functional potential and the relationship of this tissue to contiguous structures. The functional needs and the relationships in this region in the adult are also important considerations.

This study was done to show the changes in velar structure on a basis of growth and time and to correlate these changes with clinical considerations. The investigation was carried out by the use of cephalometric roentgenograms of 30 normal individuals, who were traced from infancy to adulthood.

These studies indicate that the most rapid growth period for the normal soft palate is between one and a half to two years of age. Therefore, if surgery is indicated in a patient with cleft palate, interference at this period of life would seem inadvisable. Previous studies have indicated that it would be advisable to wait until the patient is about five years old before surgical correction is attempted. This paper states that this may not be desirable, since it is shown that between the ages of four and five there is a latent period of growth followed by an increment of growth. This conclusion, however, is based on normal growth patterns, and there are individual variations.

Some individuals are watched in the hope that further development with measurable increase in the soft palate may occur. This study shows that between the ages of two and four, there is a latent period of growth; however, the cleft may appear to decrease in size because of other factors, and muscle function may improve sufficiently to indicate surgical correction. In the patients that are being observed it is important to insert a prosthesis to aid in the acquisition of physiologically near normal speech patterns. If the prosthesis is made, the anterior tubercle of the atlas would be a poor landmark, since at early ages it is noted that the soft palate is situated close to the roof of the nasopharynx and that, during function, closure occurs most frequently in the epipharyngeal regions. Therefore, in a prosthesis the pharyngeal section should be placed high in the nasopharynx.

Changes in the position of the soft palate and, hence, probably velopharyngeal function can explain why a patient with a repaired cleft palate could have good speech at an early age and poor speech later on. The relation of the length of velar tissue to pharyngeal depth is important in treatment planning. An average percentage relating the depth of the pharynx to the length of the velum can be ascertained. A lower than average percentage would be clinically favorable, and a higher than average percentage, indicating excessive pharyngeal depth, would be unfavorable. It is noted that there is a wide variation associated with the mean percentage but that those patients in whom the measurement is in this category might be good candidates for surgery, assuming other factors are favorable.

The length of the soft palate and its relation to associate structures can be measured. This fact, in addition to evaluation of the other important considerations, may be of benefit in determining whether a patient may have good function after surgery.—*Gilbert S. Small.*

■ Actinomycosis of Mandible. Harvey S. Johnson, Edwin J. Pulaski, and Calvin W. Thompson. U. S. Armed Forces M. J. 8:1214 Aug. 1957.

Actinomycosis, a granulomatous disease caused by the anaerobic organism, *Actinomyces bovis,* is not common among military personnel. When it does occur, the clinical form is usually cervicofacial, involving the soft tissues. Necrosis of bone as an early manifestation is rare. Nevertheless, the possibility should be considered in the differential diagnosis of all subacute and chronic inflammatory processes of the cranial bones in which the causative agent is obscure.

An instance of infection of the mandible with *Actinomyces bovis,* with recovery after drainage, curettage, and antibiotic therapy, is

reported. Although roentgenographic evidence suggested a granulomatous disease, repeated laboratory studies were required to isolate the causative agent. Aspiration biopsy is invaluable if any pyogenic fluctuant mass of this nature is present, to isolate and study the predominating organism and to guide future therapy. The evolution of the lesion in this instance reemphasizes the fact that antibiotics are not a substitute for adequate surgery and supportive treatment.—*Vernon J. Sture.*

■ REPARATIVE GIANT CELL GRANULOMA OF THE JAW. A Radcliffe and I. Friedmann. Brit. J. Surg. 45:50 July 1957.

Giant cell reparative granuloma is a peculiar lesion of the jaw which mimics the bona fide giant cell tumor. Two cases are described illustrating some of the difficulties in establishing the correct diagnosis, so important from the point of view of treatment. The disease is rare, occurring in young persons, mainly females, and affecting the maxilla almost exclusively. The name, given by Jaffe, conveys the more precise idea that the lesion is not a neoplasm in the true sense, but represents a local reparative reaction. It is a benign lesion which yields readily to therapy and the procedure of choice is curettage.

The true giant cellular tumor, the osteoclastoma, can be distinguished from the reparative granuloma by the following points, which are quoted from Jaffe: (1) it is rare in persons below 20 years old, usually appearing in the 25 to 40 year age group; (2) it is occasionally localized in the maxilla; (3) it may recur after removal and shows a more aggressive tendency and may metastasize, and (4) microscopically, there are large numbers of giant cells more or less regularly distributed in a rich stroma of spindle cellular or polygonal cells.

The tissue of the reparative granuloma macroscopically is often soft, friable and hemorrhagic. Microscopically, the tissue consists of a vascular loose connective tissue stroma with hemorrhages or deposits of blood pigment surrounded by giant cells which, however, are not a dominant feature and are usually small and widely scattered. Occasional osteoid trabeculae of metaplastic origin are present.

Other bone diseases to be considered in differential diagnosis of giant cell reparative granuloma include eosinophilic granuloma, and fibrous dysplasia. There is more collagen, osteoid, or bone formation and fewer giant cells or hemorrhage present in fibrous dysplasia than in the reparative granuloma.

One table, taken from Umiker, which compares clinical and pathological features of true giant cell tumor and giant cell reparative granuloma of the jaw, is included—*Charles C. Alling.*

■ THE SIGNIFICANCE OF RADIOPHOSPHORUS UPTAKE BY THE METASTATIC HEAD AND NECK NEOPLASTIC CELL. C. L. Kiehn, M.D.; J. W. Blunt, Jr., M.D., and J. D. Desprez, M.D. Plast. & Reconstr. Surg. 19:114 Feb. 1957.

The neoplastic cell metabolizes radioactive isotopes, based on the fact that it has a greater growth potential and tendency to differentiate than the normal cell.

The patients were given 100 mc. of radioactive phosphorus (P^{32}) intravenously. Twenty-four to 72 hours later, scanning counts were taken of the lymphshed of the tumor to determine the concentration of P^{32}. All patients were operated on for carcinoma, and microscopic sections were prepared.

It was shown that in all patients with head and neck carcinoma, there was increased uptake of P^{32} at the tumor site. The counts per minute were dependent on the rate of metabolism of the neoplastic cell, the presence of inflammation and necrosis and the type of cell.

Although only a few types of tumor are represented in this study, it is interesting to note that the patients with cylindroma had a markedly increased uptake compared to those with squamous cell carcinoma.

This technic may be an aid in determining when reconstructive surgery can begin after excisional surgery.—*Gilbert S. Small.*

■ The Physician's Responsibilities Toward Blood Transfusions. Robert D. Dripps, M.D. South.M.J. 51:141 Feb. 1958.

Blood transfusion is a frequently used procedure which may be very hazardous. The problem of contamination of collected blood has not been solved. Inspection of each bottle for hemolysis will tend to reduce the danger of transfusing contaminated blood, even though routine bacteriologic control of banked blood is not practicable. The hazards of transmissible diseases can be reduced by careful history and physical examination of donors, though there is a recent evidence of a viral agent, present in apparently healthy donors, which survives blood banking conditions. Homologous serum hepatitis is the most common disease transmitted by transfusion, and no practical test to detect carriers of the virus exists, nor can whole blood be sterilized as yet although the risk can be reduced by screening out all donors with a history of hepatitis. Transmission of syphilis is almost impossible if blood is stored three days. The plasmodia of malaria die when blood is stored five days.

Hemolytic reactions due to incorrect major grouping of blood should occur no longer. The indirect Coombs crossmatch test using the recipient's serum and donor cells identifies many subgroup incompatibilities, and should be used in instances involving previous transfusion and in pregnant women.

Allergenic reactions in the form of urticaria, angioneurotic edema or bronchial asthma (rarely) occur but their cause remains obscure. The addition of antihistaminics to blood has been shown to reduce allergic reactions.

Circulatory overload after transfusion is a hazard in severe anemia, patients undergoing pulmonary procedures and individuals with myocardial disease.

Hemorrhagic disorders after transfusions may be an important indication of incompatibility during general anesthesia. Similarly, transfusion of blood contaminated by bacteria is alleged to result in bleeding tendency. A decline in the coagulation factors is known to occur during storage and bank blood is likely to be deficient in certain of these factors. The problem of abnormal bleeding after large transfusions of apparently compatible banked blood probably involves many factors. Treatment of this type of bleeding is difficult and the death rate is high. A "casual" attitude toward an often lifesaving procedure can cause it to become discredited.—*William J. Amaral.*

■ Plastic Repair for Total Loss of Mandible. John B. Erich, M.D. Am. J. Surg. 94:851 Dec. 1957.

Attempts at reconstruction after total loss of the mandible by means of autogenous bone grafts have proved completely unsatisfactory. Even though a prosthetic appliance is very beneficial as far as restoration of normal facial contour is concerned, it is very unsatisfactory from a functional standpoint. A more desirable esthetic and functional restoration for total loss of the mandible has been effected by the combined use of a tubed flap of skin and an intraoral prosthetic device.

In preparation for the tubed skin graft, a double pedicle flap of skin is elevated and tubed in an oblique direction across one clavicle. One month later the supraclavicular end of the tube is detached and transferred to one or the other of the submaxillary regions. Three weeks later the infraclavicular end of the tube is cut off and transplanted to the opposite submaxillary region. After another three weeks, a horizontal incison is made from the submental region into the oral cavity; this cut, which completely frees all attachments of the chin and lower lip from the floor of the mouth, is situated just anterior to the scarred ridge. The tube flap then can be wedged into this incision to force the lower lip and chin forward.

After the tubed flap is completely healed in its new position, the next step in the reconstructive process involves the creation of a lower alveolar ridge, which helps to prevent the intraoral prosthetic device from slipping around in the mouth and which gives the appliance some degree of stability.—*Herbert J. Bloom.*

Announcements

■ Mexico City to be Site of Pan American Dental Congress

Robert M. Ruff, president of the Mexican Dental Association, has invited all members of the American Dental Association to attend the Pan American Dental Congress, to be held in Mexico City November 18-22, immediately following the 99th annual session of the American Dental Association in Dallas.

The Congress is sponsored by the Mexican Dental Association.

Leading dentists from the Western Hemisphere will present essays and clinics. Social events and sightseeing tours will also be given in conjunction with the Congress. Tours prior to the Congress have been arranged to include Acapulco, Taxco, Puebla, Penafiel and San Miguel Allende. After the Congress, a tour to Guatemala is scheduled.

Mr. J. D. Howard has been appointed travel coordinator. He is also in charge of the U. S. headquarters for the Congress, which have been established at 1715 Pacific Ave., Dallas, Texas. Inquiries and registration of dentists from the United States who wish to attend the Congress will be handled through the Dallas headquarters.

■ Housing Bureau Opens for 99th Annual Session of A.D.A.

The opening of the Housing Bureau for the American Dental Association's 99th annual session, which is to be held in Dallas November 10-13, has been announced by P. Earle Williams, chairman of the General Committee on Local Arrangements.

All reservations must be made through the A.D.A. Housing Bureau, which is located at 1101 Commerce St., Dallas 2, Texas. Official application forms may be obtained from the Housing Bureau.

The scientific program will be presented at the Dallas Memorial Auditorium.

■ Fifth Congreso Dental Nacional to be Held in Havana, Cuba

The Fifth Congreso Dental Nacional will be held November 14-17 in Havana, Cuba. The Congreso is sponsored and organized by the Colegio Estomatológico Nacional de Cuba. The meeting is scheduled to follow immediately after the 99th annual session of the American Dental Association.

■ 1959 American Dental Association Appointment Book Available

The American Dental Association appointment book is available from the Order Department at the Central Office of the Association, 222 E. Superior St., Chicago.

Several improvements are incorporated in the 1959 book. Lines are lighter, enabling the user to enter appointments more easily. The half hours are shown as well as the hours, and evening hours to 9:00 P.M. are also shown.

The appointment book contains calendars for 1958, 1959 and 1960 and a list of national, state and territorial holidays.

The book is case bound in simulated leather. The price is $3 postpaid to any destination in the United States.

■ Oral Pathology Board Tells Dates of Examination

The American Board of Oral Pathology will hold its annual examination for certification December 6 and 7. The place of examination will be announced when the geographical location of the applicants has been determined.

All applications should be sent to Donald A. Kerr, the secretary of the Board, at the University of Michigan School of Dentistry, Ann Arbor, before July 1.

■ American Institute of Dental Medicine to Meet in Palm Springs

The 15th anniversary meeting of the American Institute of Dental Medicine will be held in Palm Springs, Calif., October 12-16.

Speakers scheduled for the meeting will include authorities in the fields of oral medicine and endocrinology; also, Hans Selye, M.D., will discuss his concept of stress, and S. I. Hayakawa, will address the meeting on communication and related aspects of general semantics.

Information may be secured from Miss M. Lewis, executive secretary, 2240 Channing Way, Berkeley 4, Calif.

■ International Meeting to be Held in San Jose, Costa Rica

The Odontological Federation of Central America and Panama will hold its second international convention in San José, Costa Rica, November 26-29.

Symposiums will be given on dental medicine, dental education and prosthodontics. Leading American and Latin American dentists will participate in the program.

Further information may be obtained from Roberto Chartier, president of the Odontological Federation of Central America and Panama, Apartado Postal 698, San José, Costa Rica.

■ University of Minnesota Plans 13th Seminar on Oral Medicine

The University of Minnesota School of Dentistry and Center for Continuation Study announces the 13th annual seminar on the study and practice of oral medicine. Sessions will be held at the continuation study center in Minneapolis September 26 and 27.

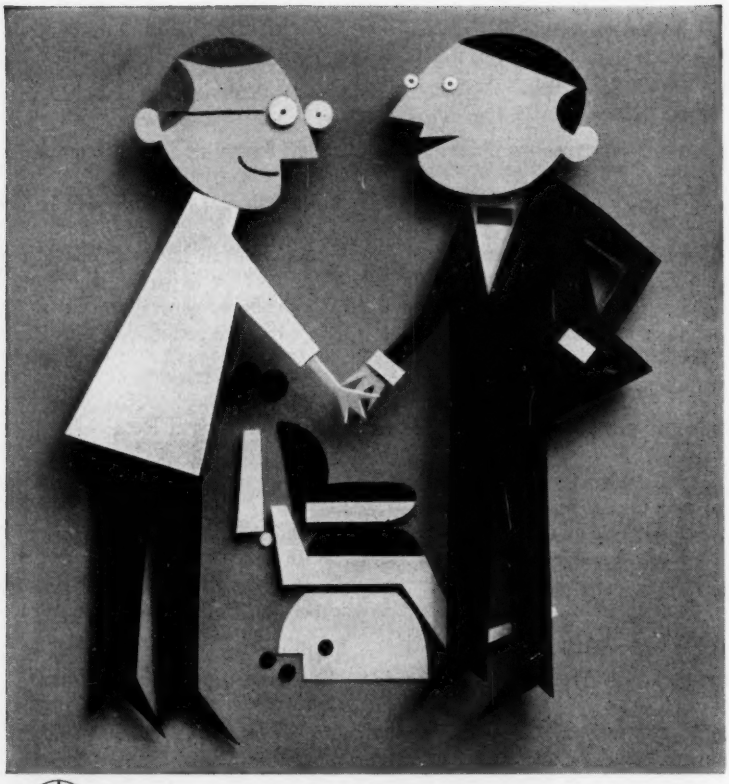
Further information may be obtained from the Center for Continuation Study, University of Minnesota, Minneapolis 14.

■ American Dental Association Publishes Book on Nomenclature

Vocabulary of Dentistry and Oral Science, a book which should help the dentist solve many problems of terminology, has been published by the American Dental Association. George B. Denton, Ph.D., Association research consultant, is the author.

Designed particularly for the use of teachers and students of dentistry, the book explains the way scientific words are composed, and terms in the dental vocabulary are used to exemplify the principles given. A glossary of selected terms and their synonyms, with critical discussions, is included.

The book, which contains over 200 pages, is cloth bound and is priced at $4 a copy. Orders should be addressed to the Order Department of the American Dental Association, 222 E. Superior St., Chicago 11.



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